APPENDIX A – CONSUMER CONFIDENCE REPORT CERTIFICATION FORM

PWS Name: _____
City/Town: _____ PWS ID #: _____

The community water system named above hereby confirms that its Consumer Confidence Report (CCR) was distributed to each customer and/or appropriate notices of availability have been given in compliance with 310 CMR 22.16A. Further, the system certifies that the information contained in the report is correct and consistent with the compliance monitoring data previously submitted to the Massachusetts Department of Environmental Protection.

Certified by: Name _____ Title _____

Signature _____ Phone # _____ Date_____

☑ **Check all items that apply. (Note: ALL distribution/delivery/publication must be completed BEFORE JULY 1st)**

CONSUMER DELIVERY METHODS – BASED ON POPULATION SERVED

For Systems selling water to another community water system

☐ My system delivered the applicable information required at 310 CMR 22.16A(4), to the buying system(s) no later than April 1st of this year, or by the mutually agreed upon date specifically included in a written contract between the parties.

For Systems serving less than 500 persons

1. ☐ On _____(date) my system used one or more of the following methods to notify customers that the CCR would not be mailed directly to them and is available to them upon request. (A copy of the notice is attached).
☐ Mail ☐ door-to-door delivery ☐ newspaper ☐ posting notice in the following locations:
_____.

2. ☐ On _____(date) my system provided a copy of the CCR to each customer by one of the following methods:
☐ Published the report in a local newspaper (a copy of the published report is attached).
☐ Directly mailed or delivered a CCR to consumers.

For Systems serving between 500 and 9,999 persons

1. ☐ On _____(date) my system published the full report in a local newspaper (copy of published CCR is attached). In addition, my system used one of the following methods to notify customers that the CCR would not be mailed directly to them and is available to them upon request.
☐ Published notification in the same local newspapers in which the report was published (copy of notification is attached) or;
☐ Provided notification by a statement in a bill or newsletter (copy of bill or newsletter is attached).

2. ☐ On _____(date) my system provided a copy of the CCR to each customer by direct mail or delivery.

For Systems serving 10,000 or more persons

1. ☐ On _____(date) my system provided a copy of the CCR to each customer by direct mail.

2. ☐ On _____(date) my system provided a copy of the CCR to each customer by the following direct delivery methods (other than mail): _____.

3. ☐ In addition to one of the delivery methods checked above, my system serves greater than 100,000 persons and as required has posted the CCR on a publicly accessible Internet site at the following address: www. _____.

GOOD FAITH DELIVERY METHODS – IN ADDITION TO ABOVE, A MINIMUM OF THREE OF THE FOLLOWING WERE CONDUCTED:

☐ Posted CCR on a publicly accessible Internet site at the following address: www. _____.
☐ Mailed the CCR to all postal patrons within the service area. (List of zip codes used is attached)
☐ Advertised availability of the CCR in the following news media (a copy of the announcement is attached):
☐ Radio ☐ newspaper ☐ television/cable
☐ Published CCR in local newspaper (a copy of the published CCR is attached)
☐ Posted the CCR in public places, including post office, town hall and public library (a list of locations is attached)
☐ Delivered multiple copies to single bill addresses serving several persons: i.e. apartments, businesses, and large private employers
☐ Delivered to community organizations (list of organizations is attached).
☐ Post report or notice of availability in the lobby of apartment complexes
☐ Other: _____.

MANDATORY AGENCY DELIVERY REQUIREMENTS – FOR ALL SYSTEMS

☐ Delivered 1-copy of CCR and 1-copy of Certification Form to the local Board of Health on_____(date).
☐ Delivered 1-copy of CCR and 1-copy of Certification Form to MA Dept. of Public Health on _____(date).
☐ Delivered 1-copy of CCR and 1-copy of Certification Form to MA DEP Boston Office on_____(date).
☐ Delivered 2-copies of CCR, 2-copies of Certification Form **and** 2-copies of ALL the attachments check-marked above to the appropriate DEP Regional Office on _____(date).

THE CONSUMER CONFIDENCE REPORT TEMPLATE

Commonwealth of Massachusetts
Department of Environmental Protection
Drinking Water Program

REVISED MARCH 2002

Prepared by the Drinking Water Program at the MA Department of Environmental Protection (DEP). Direct questions on this template to Judith Hutchinson, at 617-292-5931. It is strongly recommended that you also consult ***Recommended Tips for Preparing User Friendly Consumer Confidence Reports: A Guide to the Massachusetts Requirements for Community Public Drinking Water Systems.*** The ***Guide*** contains technical appendices on contaminants, certification forms, and other helpful aids. These documents and technical appendices are accessible on the DEP Web site:

www.mass.gov/dep/brp/dwspubs.htm.

DEP encourages all public water systems to use the Consumer Confidence Report (CCR) as a tool to educate customers about their efforts to provide safe drinking water.

Instructions

The Massachusetts DEP developed this template to assist Community Public Water Systems in preparing their annual Consumer Confidence Report (CCR). The format of this template follows instructional information and tips contained in the Guide.

If you follow the instructions noted in each section your report will be in full compliance with the current federal and state consumer confidence reporting requirements.

This template is a Microsoft Word document that can be downloaded to your hard drive. Follow the directions throughout the template, and delete the colored text when you insert your system's information. Once data entry is completed, review for accuracy and print.

- Instructional text in *[red italic brackets]* concerns required information. Delete this text after filling in any required information.
- Instructional text in *{blue italic brackets}* concerns recommended or optional information. Delete this text after filling in any information.

The basic information that is required for each CCR falls into the following sections within the template. In each of the sections you will find explanations of what you need to report. Also, since much of the related information you need is found in the Guide or its appendices, you will find references to these sections for additional information.

I.	**Public Water System Information**
II.	**Your Drinking Water Source**
III.	**Substances Found in Tap Water**
IV.	**Important Definitions**
V.	**Water Quality Testing Results**
VI.	**Compliance with Drinking Water Regulations**
VII.	**Educational Information**
VIII.	**Additional Information**

Before July 1:

- Distribute the CCR to your customers (by mailing, publishing, posting, and any other required methods);
- Submit the appropriate number of copies of the CCR, the CCR certification form (Appendix A), and supporting documentation to DEP Boston, your DEP regional office, your local health board, and the Department of Public Health. Refer to guidance document for distribution requirements and addresses.

[YEAR] Annual Drinking Water Quality Report
For
[PWS NAME]
[City/Town], Massachusetts
DEP PWSID # [XXXXXXX]

This report is a snapshot of drinking water quality that we provided last year. Included are details about where your water comes from, what it contains, and how it compares to state and federal standards. We are committed to providing you with information because informed customers are our best allies.

I. PUBLIC WATER SYSTEM INFORMATION

Address: *[system address]*

Contact Person: *[system contact person name for further information]*

Telephone #: *[system phone#]* Fax #: *{insert fax number if available or delete}*

Internet Address: *{insert system web address if available or delete}*

Water System Improvements

Our water system is routinely inspected by the Department of Environmental Protection (DEP). The DEP inspects our system for its technical, financial and managerial capacity to provide safe drinking water to you. To ensure that we provide the highest quality of water available, your water system is operated by a Massachusetts certified operator who oversees the routine operations of our system. As part of our ongoing commitment to you, last year we made the following improvements to our system: [Insert a statement on your system's response to the latest DEP Sanitary Survey findings. Describe what your system did to eliminate any deficiencies during the reporting year, or otherwise describe any other system improvements.]

Opportunities for Public Participation

If you would like to participate in discussions regarding your water quality, you may attend the following meetings or educational events: [Insert information about opportunities for public participation in meetings and educational events including dates, times and locations].

II. YOUR DRINKING WATER SOURCE

Where Does My Drinking Water Come From?

Your water is provided by the following sources listed below:

[Insert information about the source(s) of your drinking water including: # of sources, common name of source, DEP source ID# (refer to your sample schedule for source #s), type of water (groundwater or surface water), and physical location of sources. Add or delete as many lines as required. Delete examples in red text from table.]

Source Name	DEP Source ID#	Source Type	Location of Source
Well #1	5054003-01G	Groundwater	Northwesterly corner of the building
Smith Street Well	5054003-02G	Groundwater	Smith Street

Is My Water Treated?

[*Insert information on treatment if required by DEP, or delete this section if not applicable to your water system. DEP encourages all systems to include information on water treatment practices.]*

[The following are examples of treatment statements that you may use. Modify/Add treatment information that is applicable to your system. Delete all that do not apply. Refer to Appendix F of the Guide for additional information on treatment techniques.]

Our water system makes every effort to provide you with safe and pure drinking water. To improve the quality of the water delivered to you, we treat it to remove several contaminants.

[Examples]

- *We add a disinfectant to protect you against microbial contaminants.*
- *We filter the water to remove small particles and organisms such as sediment, algae and bacteria.*
- *We chemically treat the water to reduce lead and copper concentrations.*
- *We add fluoride to the water to aid in dental health and hygiene.*
- *We aerate and filter the water to remove volatile organic contaminants.*
- *We aerate the water to reduce radon concentrations.*
- *We chemically treat the water to reduce levels of iron and manganese.*

The water quality of our system is constantly monitored by us and the DEP to determine the effectiveness of existing water treatment and to determine if any additional treatment is required.

*{**OPTIONAL**-insert a statement if your system does not treat the water-such as:}*
Our water system makes every effort to provide you with safe and pure drinking water. We are pleased to report that your water does not need to be treated at this time to meet these goals. The water quality of our system is constantly monitored by us and the DEP to determine if any future treatment may be required.

*{**OPTIONAL**-insert a statement if your system is working on the installation of treatment-such as:}*
Our water system makes every effort to provide you with safe and pure drinking water. The water quality of our system is constantly monitored by us and the DEP to determine if any treatment may be required. Prior water quality test results show that the water needs to be treated to continue to meet these goals. To improve the quality of the water, our system is working on the installation of treatment to *[reduce or remove_____]*. We expect this treatment to be on-line and operational by *[date]*.

How Are These Sources Protected?
[If a DEP source water assessment was performed, include information on where your consumers can get a copy of the report, highlight significant sources of contamination, and include a brief summary of the water system's susceptibility to potential sources of contamination using language provided by the DEP. If your system has not received a DEP SWAP report, you may delete the following sections or consider adding recommended information referenced in the Source Protection section of the Guide-Appendix H.]

The Department of Environmental Protection (DEP) has prepared a Source Water Assessment Program (SWAP) Report for the water supply source(s) serving this water system. The SWAP Report assesses the susceptibility of public water supplies.

The SWAP Report notes the key issues of *[key issues from the Discussion section of the SWAP Report]* in the water supply protection area for source(s) *[names]*. The report commends our water system on *[existing source protection measures]*.

What is My System's Ranking?
A susceptibility ranking of *[high, moderate, low]* was assigned to this system using the information collected during the assessment by the DEP.
What Can Be Done To Improve Protection?
The SWAP report recommends:

- *[Key recommendations]*
- *[Key recommendations].*

Our public water system plans to address the protection recommendations by:

- *[PWS plans]*
- *[PWS plans].*

Residents can help protect sources by:
{Examples}

- *Practicing good septic system maintenance*
- *Supporting water supply protection initiatives at the next town meeting*
- *Taking hazardous household chemicals to hazardous materials collection days*
- *Contacting the water department or Board of Health to volunteer for monitoring or education outreach to schools*
- *Limiting pesticide and fertilizer use, etc.*

Where Can I See The SWAP Report?
The complete SWAP report is available at *[the water department, Board of Health, or other location]* and online at www.state.ma.us/dep/brp/dws/. For more information, call *[water system contact and phone number]*.

III. SUBSTANCES FOUND IN TAP WATER

[Insert the following required language.]

Sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals, and in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

Microbial contaminants -such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

Inorganic contaminants -such as salts and metals, which can be naturally-occurring or result from urban stormwater runoff, industrial, or domestic wastewater discharges, oil and gas production, mining, and farming.

Pesticides and herbicides -which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.

Organic chemical contaminants -including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.

Radioactive contaminants -which can be naturally occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the Department of Environmental Protection (DEP) and U.S. Environmental Protection Agency (EPA) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) and Massachusetts Department of Public Health (DPH) regulations establish limits for contaminants in bottled water that must provide the same protection for public health. All drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (800-426-4791).

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and some infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/Centers for Disease Control and Prevention (CDC) guidelines on lowering the risk of infection by cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

IV. IMPORTANT DEFINITIONS

[Insert the following definitions as applicable. The definitions should relate to the contaminants reported in your water quality tables or terms referenced elsewhere in the report. Refer to the Regulated Contaminants table found in Appendix C of the Guide for a complete list of contaminants with MCLs, MRDLs, Treatment Techniques (TTs) and Action Levels (ALs). Delete all definitions that do not apply to your system.]

[Insert MCL & MCLG definitions if reporting regulated contaminants subject to a maximum contaminant level.]

Maximum Contaminant Level (MCL) – The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

Maximum Contaminant Level Goal (MCLG) –The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

[Insert MRDL & MRDLG definitions if reporting regulated contaminants subject to a maximum residual disinfectant level such as chlorine, chloramines or chlorine dioxide.]

Maximum Residual Disinfectant Level (MRDL) -- The highest level of a disinfectant (chlorine, chloramines, chlorine dioxide) allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfectant Level Goal (MRDLG) -- The level of a drinking water disinfectant (chlorine, chloramines, chlorine dioxide) below which there is no known of expected risk to health. MRDLG's do not reflect the benefits of the use of disinfectants to control microbial contaminants.

[Insert TT definition if reporting regulated contaminants subject to a treatment technique such as turbidity, total organic carbon, epichlorohydrin, or acrylamide.]

Treatment Technique (TT) – A required process intended to reduce the level of a contaminant in drinking water.

[Insert Action Level definition if reporting regulated contaminants subject to an action level such as lead or copper.] {The 90th Percentile definition is optional.}

Action Level (AL) – The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

90th Percentile – Out of every 10 homes sampled, 9 were at or below this level.

[Insert the following definition if your system is operating under a variance or exemption.]

Variances and Exemptions – State or EPA permission not to meet an MCL or a treatment technique under certain conditions.

{OPTIONAL-The following definitions may be used when referring to units of measure, as listed in Appendix C of the Guide.}

ppm = parts per million, or milligrams per liter (mg/l)
ppb = parts per billion, or micrograms per liter (ug/l)
ppt = parts per trillion, or nanograms per liter
pCi/l = picocuries per liter (a measure of radioactivity)
NTU = Nephelometric Turbidity Units
ND = Not Detected
N/A = Not Applicable
mrem/year = millimrems per year (a measure of radiation absorbed by the body)

{OPTIONAL-The following definitions may be used when referring to secondary contaminant levels or established guidelines.}

Secondary Maximum Contaminant Level (SMCL) – These standards are developed to protect the aesthetic qualities of drinking water and are not health based.

Massachusetts Office of Research and Standards Guideline (ORSG) – This is the concentration of a chemical in drinking water, at or below which, adverse health effects are unlikely to occur after chronic (lifetime) exposure. If exceeded, it serves as an indicator of the potential need for further action.

V. WATER QUALITY TESTING RESULTS

[Include in the following tables all regulated and unregulated contaminant detections reported to DEP as required routine monitoring, or conducted as required special monitoring. You must report the results of data from the most recent round of sampling for EACH monitoring group, even if the results are in compliance with established MCLs or action levels. Use as many lines or tables as needed in your report.]

[NOTE: A detected contaminant is any contaminant observed at or above its laboratory minimum detection level (MDL). If the contaminant is reported by the laboratory as less than (<) the MDL, not-detected (ND) or otherwise below the detection limit (BDL), that contaminant is not required to be included within the report.]

What Does This Data Represent?
The water quality information presented in the table(s) are from the most recent round of testing done in accordance with the regulations. All data shown was collected during the last calendar year unless otherwise noted in the table(s).

[If your system has a waiver for any contaminant group, such as volatiles (VOCs), inorganics (IOCs) or synthetics (SOCs), and is not required to monitor regularly, include the following statement.]

The Massachusetts Department of Environmental Protection has reduced the monitoring requirements for *[insert name of contaminant group(s): volatile organic contaminants, inorganic contaminants, synthetic organic contaminants]* because the source is not at risk of contamination. The last sample collected for these contaminants was taken on *[insert date(s)]* and was found to meet all applicable EPA and DEP standards.

[If reporting lead or copper detections; use the table below-otherwise delete.]

[For specific information on reporting your lead and copper sampling results, you may refer to your most recent Lead and Copper Review Summary Sheet if available from your DEP regional office. Report the results of your most recent Lead and Copper sampling round. If more than one sample round was collected during the last calendar year-report the results from the most recent round.]

	Date(s) Collected	90TH percentile	Action Level	MCLG	# of sites sampled	# of sites above Action Level	Possible Source of Contamination
Lead (ppb)			**15**	**0**			Corrosion of household plumbing systems; Erosion of natural deposits
Copper (ppm)			**1.3**	**1.3**			Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives

- *[If your water system detected **Lead** above the Action Level in more than 5%, and up to and including 10%, of the homes sampled, a special educational statement is required. Refer to the 'Education Information' section of this template for the required statement.]*

- *[For any violations, including failure to meet corrosion control treatment, source water treatment or lead service requirements you must include the health effects statement listed for that contaminant, an explanation of the violation/exceedance, and actions taken to address the violation. Refer to the 'Compliance with Drinking Water Regulations' section of this template for violation examples and required health statements.]*

[If reporting bacteria detections; use one of the tables below-delete all other tables or lines that do not apply.]

[If your system collects less than 40 total coliform samples per month; use the table below to report any bacteria detections during the last calendar year. If your system detected either fecal or E.coli positive samples, you must report the highest total # positive in a month, otherwise you may delete the fecal/E.coli line from the table.]

	Highest # Positive in a month	MCL	MCLG	Violation (Y/N)	Possible Source of Contamination
Total Coliform		**1**	**0**		**Naturally present in the environment**
Fecal Coliform or E.coli		*	**0**		**Human and animal fecal waste**

* Compliance with the Fecal Coliform/E.coli MCL is determined upon additional repeat testing.

[If your system collects 40 or more total coliform samples per month; use the table below to report any bacteria detections during the last calendar year. If your system detected either fecal or E.coli positive samples, you must report the highest total # positive in a month, otherwise you may delete the fecal/E.coli lines from the table.]

	Highest % Positiv in a month	Total # Positive	MCL	MCLG	Violation (Y/N)	Possible Source of Contamination
Total Coliform		-----	**>5%**	**0**		**Naturally present in the environment**
Fecal Coliform or E.coli	**-----**		*****	**0**		**Human and animal fecal waste**

* Compliance with the Fecal Coliform/E.coli MCL is determined upon additional repeat testing.

[For any violations, you must include the health effects statement for that contaminant, an explanation of the violation/exceedance, and actions taken to address the violation. Refer to the 'Compliance with Drinking Water Regulations' section of this template for violation examples and required health statements.]

[If required to collect turbidity information; use one of the tables below – delete all tables that do not apply.]

[When reported as a MCL for systems that must install filtration but have not, include the highest monthly average for turbidity measurements collected during the last calendar year in the table below.]

	MCL	Highest Monthly Average	Violation (Y/N)	Possible Source of Contamination
Turbidity (NTU)	**5**			**Soil runoff**

[When turbidity is reported as a Treatment Technique (TT) for systems that meet the criteria for avoiding filtration, include the highest single measurement found in any month. You must also explain the reasons for measuring turbidity, which has been included in the chart.]

	TT	Highest Detected Daily Value	Violation (Y/N)	Possible Source of Contamination
Turbidity (NTU)	**5**			**Soil runoff**
Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of water quality.				

*[When turbidity is reported as a Treatment Technique (TT) for systems that filter and use turbidity as an indicator of filtration performance, include the highest single measurement **and** the lowest monthly percentage of samples meeting the turbidity limits specified in 310 CMR 22.20 for the relevant filtration technology during the last calendar year. You must also explain the reasons for measuring turbidity, which has been included in the chart.]*

Turbidity	TT	Lowest Monthly % of Samples	Highest Detected Daily Value	Violation (Y/N)	Possible Source of Contamination
Daily Compliance (NTU)	**5**	-----			**Soil runoff**
Monthly Compliance*	**At least 95%**		-----		
Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of water quality.					
*Monthly turbidity compliance is related to a specific treatment technique (TT). Our system filters the water so at least 95% of our samples each month must be below the turbidity limits specified in the regulations.					

[For any violations, you must include the health effects statement for that contaminant, an explanation of the violation/exceedance, and actions taken to address the violation. Refer to the 'Compliance with Drinking Water Regulations' section of this template for violation examples and required health statements.]

[Use the following table to report the most recent contaminant detections (within the last 5 years) for all REGULATED compounds listed in Appendix C of the Guide].

[The appendices of the Guide contain information on appropriate units of measure, conversion factors, source information, health effects statements and a list of regulated and unregulated contaminants to be reported]

- *Be sure to convert to appropriate units of measure each contaminant result within your table.*
- *Report the results in the same units as the MCL/MRDL and MCLG/MRDLG.*
- *Add/Delete as many lines as needed and delete any remaining non- applicable contaminant tables.*
- *Where certain columns are non-applicable to a specific contaminant, place dashes --- or N/A within the column or delete the column. (If you use N/A make sure it is included in your definitions section).*
- *If the sample was taken prior to the last calendar year, you must include the collection date of the sample in the table(s).*

- *When reporting possible sources of contamination, you may choose to list one or all of the many contaminant sources available in table.*

[When to use - 'Highest detect value' 'Range Detected' and 'Average Detect' columns.]

- ***One sample site and***
  - ***one sample date:*** *report the highest detected level used to determine compliance.*
  - ***multiple sampling dates (averaging compliance)****: report the highest running average* ***and*** *the range of detects of the samples taken when an average or confirmation sample is used to determine MCL/MRDL compliance.*
- ***Multiple sampling sites and***
  - ***one sample date****: report the highest detected level* ***and*** *the range of detects.*
- ***Multiple sampling sites and multiple sampling dates (when a running annual average is used to determine MCL/MRDL compliance):***
  - ***Source Specific Samples****-report the highest running annual average, calculated by individual source, during the last calendar year used to determine MCL/MRDL compliance* ***and*** *the range of detects of all sources.*
  - ***Distribution Samples****-report the highest running annual average, calculated by combined sites, during the last calendar year used to determine MCL/MRDL compliance* ***and*** *the range of detects of all sample sites. (This includes TTHMs and HAAs).*

{Refer to Appendix E of the Guide – Interpreting Monitoring Data for examples on reporting monitoring results. Delete all contaminants from the table(s) for which detections are not being reported.}

Regulated Contaminant	Date(s Collecte	Highe Detec	Range Detecte	Highest Average	MCL or MRDI	MCL(or MRDL	Violatic (Y/N)	Possible Source(s of Contamination
Inorganic Contaminants								
Antimony (ppb)					**6**	**6**		Discharge from fire retardants; ceramics; electronics; solder
Arsenic (ppb)					**10**	**-----**		Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
Asbestos (MFL)					**7**	**7**		Decay of asbestos cement water mains; erosi on of natural deposits
Barium (ppm)					**2**	**2**		Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Beryllium (ppb)					**4**	**4**		Discharge from electrical, aerospace, and defense industries; erosion of natural deposits
Cadmium (ppb)					**5**	**5**		Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries and paints
Chromium (ppb)					**100**	**100**		Discharge from pulp mills; erosion of natural deposits
Cyanide (ppb)					**200**	**200**		Discharge from metal factories; discharge from plastic and fertilizer factories

Fluoride (ppm) ¦					**4**	**4**		Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Mercury (ppb)					**2**	**2**		Erosion of natural deposits; discharge from refineries and factories; runoff from landfills; runoff from cropland
Nitrate (ppm)					**10**	**10**		Runoff from fertilizer use; leaching from septic tanks; sewage; erosion of natural deposits
Nitrite (ppm)					**1**	**1**		Runoff from fertilizer use; leaching from septic tanks; sewage; erosion of natural deposits
Selenium (ppb)					**50**	**50**		Discharge from metal refineries; erosion of natural deposits; discharge from mines
Thallium (ppb)					**2**	**0.5**		Leaching from ore-processing sites; discharge from electronics, glass, and drug factories
Volatile Organic Contaminants								
Benzene (ppb)					**5**	**0**		Discharge from factories; leaching from gas storage tanks and landfills
Bromate (ppb)					**10**	**0**		Byproduct of drinking water chlorination
Carbon tetrachloride (ppb)					**5**	**0**		Discharge from chemical plants and other industrial activities
Chloramines (ppm)					**4**	**4**		Water additive used to control microbes
Chlorine (ppm)					**4**	**4**		Water additive used to control microbes
Chlorite (ppm)					**1**	**0.8**		Byproduct of drinking water chlorination
Chlorine dioxide (ppb)					**800**	**800**		Water additive used to control microbes
Chlorobenzene (ppb)					**100**	**100**		Discharge from and agricultural chemical factories
o-Dichlorobenzene (ppb)					**600**	**600**		Discharge from industrial chemical factories
p-Dichlorobenzene (ppb)					**5**	**5**		Discharge from industrial chemical factories
1,2-Dichloroethane (ppb)					**5**	**0**		Discharge from industrial chemical factories

1,1-Dichloroethylene (ppb)					**7**	**7**		Discharge from industrial chemical factories
cis-1,2-Dichloroethylene (ppb)					**70**	**70**		Breakdown product of trichloroethylene and tetrachloroethylene
trans-1,2-Dichloroethylene (ppb)					**100**	**100**		Discharge from industrial chemical factories
Dichloromethane (ppb)					**5**	**0**		Discharge from pharmaceutical and chemical factories
1,2-Dichloropropane (ppb)					**5**	**0**		Discharge from industrial chemical factories
Ethylbenzene (ppb)					**700**	**700**		Leaks and spills from gasoline and petroleum storage tanks
Haloacetic Acids (HAA5) (ppb)					**60**	**-----**		Byproduct of drinking water disinfection
Styrene (ppb)					**100**	**100**		Discharge from rubber and plastic factories; leaching from landfills
Tetrachloroethylene (PCE) (ppb)					**5**	**0**		Discharge from factories and dry cleaners
1,2,4-Triclorobenzene (ppb)					**70**	**70**		Discharge from textile-finishing factories
1,1,1-Trichloroethane (ppb)					**200**	**200**		Discharge from use in septic system cleaners
1,1,2-Trichloroethane (ppb)					**5**	**3**		Discharge from industrial chemical factories
Trichloroethylene (TCE) (ppb)					**5**	**0**		Discharge from metal degreasing sites and other factories
Toluene (ppm)					**1**	**1**		Leaks and spills from gasoline and petroleum storage tanks; discharge from petroleum factories
Vinyl Chloride (ppb)					**2**	**0**		Leaching from PVC piping; discharge from plastics factories
Xylenes (ppm)					**10**	**10**		Leaks and spills from gasoline and petroleum storage tanks; discharge from petroleum factories; discharge from chemical factories
Total Trihalomethanes (TTHMs) (ppb)					**80**	**-----**		Byproduct of drinking water chlorination
Radioactive Contaminants								
Gross Alpha (pCi/l) **(minus uranium)**					**15**	**0**		Erosion of natural deposits
GrossBeta/photon emmiters (pCi/L) ?					**50**	**0**		Decay of natural and man-made deposits

Radium 226 & 228 (pCi/L) (combined values)					**5**	**0**		Erosion of natural deposits
Uranium (ppb)					**30**	**0**		Erosion of natural deposits
Synthetic Organic Contaminants								
2,4-D (ppb)					**70**	**70**		Runoff from herbicide used on row crops
2,4,5-TP (Silvex) (ppb)					**50**	**50**		Residue of banned herbicide
Acrylamide					**TT=5%**	**0**		Added to water during sewage/wastewater treatment
Alachlor (ppb)					**2**	**0**		Runoff from herbicide used on row crops
Atrazine (ppb)					**3**	**3**		Runoff from herbicide used on row crops
Benzo(a)pyrene (ppt)					**200**	**0**		Leaching from linings of water storage tanks and distribution lines
Carbofuran (ppb)					**40**	**40**		Leaching of soil fumigant used on rice and alfalfa
Chlordane (ppb)					**2**	**0**		Residue of banned termiticide
Dalapon (ppb)					**200**	**200**		Runoff from herbicide used on rights of way
Di (2-ethylhexyl) adipate (ppb)					**400**	**400**		Discharge from chemical factories
Di (2-ethylhexyl) phthalate (ppb)					**6**	**0**		Discharge from rubber and chemical factories
Dibromochloropropane (DBCP) (ppt)					**200**	**0**		Runoff/leaching from soil fumigant used on soybeans, cotton, and orchards
Dinoseb (ppb)					**7**	**7**		Runoff from herbicide used on soybeans and vegetables
Endrin (ppb)					**2**	**2**		Residue of banned insecticide
Epichlorohydrin					**TT=1%**	**0**		Discharge from industrial chemical factories; an impurity of some water treatment chemicals
Ethylene dibromide (EDB) (ppt)					**20**	**0**		Residue of leaded gasoline or runoff from soil fumigant used on tobacco or strawberries
Heptachlor (ppt)					**400**	**0**		Residue of banned pesticide
Heptachlor epoxide (ppt)					**200**	**0**		Breakdown of heptachlor
Hexachlorobenzene (ppb)					**1**	**0**		Discharge from metal refineries and agricultural chemical factories
Hexachlorocyclopentadiene (ppb)					**50**	**50**		Discharge from chemical factories

Lindane (ppt)					**200**	**200**		Runoff/leaching from insecticide used on cattle, lumber, gardens
Methoxychlor (ppb)					**40**	**40**		Runoff/leaching from insecticide used on fruits, vegetables, alfalfa, livestock
Oxamyl (Vydate) (ppb)					**200**	**200**		Runoff/leaching from insecticide used on apples, potatoes and tomatoes
Polychlorinated biphenyls (PCBs) (ppt)					**500**	**0**		Runoff from landfills; discharge of waste chemicals; residue of banned use in electrical transformers
Pentachlorophenol (ppb)					**1**	**0**		Discharge from wood preserving factories
Picloram (ppb)					**500**	**500**		Herbicide runoff
Simazine (ppb)					**4**	**4**		Herbicide runoff
Toxaphene (ppb)					**3**	**0**		Runoff/leaching from insecticide used on cotton and cattle

¦ Fluoride also has a secondary contaminant level (SMCL) of 2 ppm.
?The MCL for beta particles is 4 mrem/year. EPA considers 50 pCi/L to be the level of concern for beta particles.

[Use the table below to report the most recent contaminant detections (within the last 5 years) for unregulated compounds listed in Appendix D of the Guide].

[Refer to Appendix D of the Guide for additional listings of unregulated contaminants that are required to be reported if detected in the finished water. Some common contaminants are listed in the chart below. Note in addition to reporting finished water detections, if cryptosporidium is detected in the raw water it is required to be reported.]

{OPTIONAL}

- *SMCL or ORSG information is not required to be reported in the table, however if you choose to include this information please refer to Drinking Water Standards and Guidelines for Chemicals in Massachusetts Drinking Waters published by the Massachusetts Office of Research and Standards available on the web at http://www.state.ma.us/dep/ors/orspubs.htm*
- *Health Effects Statements are not required to be reported for unregulated contaminants, however if your system reports detections that are at or near a standard, it is recommended to include some health effect information in the 'Education Information' section of the template. Suggested health effect and source information for unregulated contaminants can be found in Appendix D of the Guide.*
- Include a brief explanation for the reason for monitoring of these contaminants, such as below.

Unregulated contaminants are those for which EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist EPA in determining their occurrence in drinking water and whether future regulation is warranted.

Unregulated Contaminant	Date(s) Collected	Result or Range Detected	Average Detected	SMC	ORSG	Possible Source
Inorganic Contaminants						
Sodium (ppm)				**----**	**20**	Natural sources; runoff from use as salt on roadways; by-product of treatment process
Nickel (ppm)				**----**	**0.1**	Discharge from industrial processes
Sulfate (ppm)				**250**	**----**	Natural sources

Radiological Contaminants						
Radon (pCi/L)				**----**	**10,000**	Natural sources
Organic Contaminants						
MTBE (ppb)				**20-40**	**70**	Fuel additive
Bromodichloromethane (ppb)				**---**	**---**	By-product of drinking water chlorination
Bromoform (ppb)				**---**	**---**	By-product of drinking water chlorination
Chloroform (ppb)				**---**	**---**	By-product of drinking water chlorination
Dibromodichloromethane (ppb)				**---**	**---**	By-product of drinking water chlorination
Bacteriological Contaminants						
Cryptosporidium				**----**	**----**	

{OPTIONAL-Secondary contaminants are <u>not required</u> to be reported, unless they are specifically scheduled for testing, as listed on your DEP water quality sampling schedule (example: special iron and manganese testing.) If you choose to include secondary contaminants within your report, you must use a separate table, such as below.}

Secondary Contaminant	Date(s) Collected	Result or Range Detected	SMCL	Possible Source
Iron (ppm)			0.3	Naturally occurring, corrosion of cast iron pipes
Manganese (ppm)			0.05	Erosion of natural deposits
Aluminum (ppm)			0.2	Byproduct of treatment process
Chloride (ppm)			250	Runoff from road de-icing, use of inorganic fertilizers, landfill leachates, septic tank effluents, animal feeds, industrial effluents, irrigation drainage, and seawater intrusion in coastal areas
Color (C.U.)			15	Naturally occurring organic material
Copper (ppm)			1	Naturally occurring organic material
Corrosivity			Non-corrosive	-----
Odor (T.O.N.)			3 TON	Erosion of natural deposits; Leaching from wood preservatives0
pH			6.5-8.5	-----
Silver (ppm)			0.10	Erosion of natural deposits
Total Dissolved Solids (TDS) (ppm)			500	Erosion of natural deposits.
Zinc (ppm)			5	Erosion of natural deposits, leaching from plumbing materials
Foaming Agents (ppm)			0.5	-----

REMEMBER TO DELETE ALL TABLES AND LINES FROM THE WATER QUALITY CHARTS THAT DO NOT APPLY TO YOUR SYSTEM!!

VI. COMPLIANCE WITH DRINKING WATER REGULATIONS

Does My Drinking Water Meet Current Health Standards?

[For any contaminant violations of an MCL, MRDL, treatment technique or exceeding an action level, you must include:]

- *the health effects statement for that contaminant,*
- *an explanation of the violation/exceedance,*
- *the length of the violation and*
- *actions taken to address the violation.*

[Example]
We are committed to providing you with the best water quality available. However some contaminants that were tested last year did not meet all applicable health standards regulated by the state and federal government. Due to contaminant violations of *[insert name of contaminant(s)]* during the period(s) of *[date range]* our system took the following corrective actions.

[Examples:]
- We collected additional samples.
- We announced public notification by newspaper, posting notices etc.
- We disinfected and flushed the distribution system to eliminate coliform bacteria.

Our water system and the DEP monitor and record the effectiveness of actions taken in response to contaminant violations. The health effect statement for this contaminant is listed below.

*{**OPTIONA**L-If NO contaminant violations are reported, insert a statement such as the following}.*
We are committed to providing you with the best water quality available. We are proud to report that last year your drinking water met all applicable health standards regulated by the state and federal government.

Health Effects Statements

[Some common health statements are listed below. Refer to the Appendix C & D of the Guide for complete listings of health statements for regulated and unregulated contaminants. Delete all statements that do not apply to your system.]

[Health Effects Statement to be included for Lead violations:]
Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.

[Health Effects Statement to be included for Copper violations:]
Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.

[Health Effects Statement to be included if reporting Total Coliform violations:]
Total Coliform: Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other potentially harmful bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems.

[Health Effects Statement to be included if reporting Fecal Coliform or E.coli violations:]
Fecal coliforms and E.coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, and people with severely-compromised immune systems.

[Health Effects Statement to be included if reporting Turbidity violations:]
Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea and associated headaches.

[Health Effects Statement to be included if arsenic is detected above the 10 ppb MCL:]
Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.

Drinking Water Violations

[If your system has violated or continues to violate any of the national drinking water regulatory requirements during the reporting period, your CCR must include a clear and readily understandable explanation of any violation during the reporting period, as well as any potential adverse health effects and the steps taken to correct the violation(s). Delete this section if you do not have any violations to report.]

[These violations may include:]

- *Monitoring and reporting compliance data;*

We failed to complete required sampling in a timely manner, which is a monitoring and reporting violation. Because we did not take the required number of samples, we did not know whether the contaminants were present in your drinking water, and we are unable to tell you whether your health was at risk during that time. The contaminants for which monitoring was not done are listed in the table below, with the period during which samples should have been taken, the number of samples each contaminant required, the number taken, and when the required sampling was conducted. In addition to sampling for these contaminants, our system announced public notification upon awareness of the violation.

Contaminant	Monitoring Perio	Number of Sample Required	Number of Sample Taken	Date Sampling Conducted	Health Effects
Volatile Organic Contaminants	1/96-12/98	1	0	2/99	Unknown
Total Coliform Bacteria	10/1/98-10/31/98	100	93	11/98	Unknown

[Regardless of whether the violation information is presented in tabular or paragraph form or a combination thereof, an explanation of the potential health effects and steps to correct the violation must also be included. If a system failed to take the sample on time, the report should say "health effects unknown." If the system took the samples accurately and on time, but mailed the results late, the system does not need to discuss health effect.]

- *Filtration and disinfection processes; if the violation was due to a failure to install adequate filtration or disinfection equipment or processes; or there was a failure of that equipment or process, the following statement must be included in the CCR:*

Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites, which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.

- *Lead and copper requirements; if the violation was a failure to meet corrosion control treatment, or lead service requirements, you must include the appropriate health effects statement(s).*
- *Treatment techniques for Acrylamide and Epichlorohydrin; if either treatment technique is violated, the appropriate heath effects statement(s) must be included.*
- *Record keeping requirements.*
- *Violation of the terms of a variance, an exemption, or an administrative or judicial order.*
- *When an event occurs during the reporting year which causes a PWS to violate the Surface Water Treatment Rule or any other drinking water standard.*

- *If your system was operating under a DEP consent order last year to install corrosion control treatment for either lead or copper, you must include the appropriate health effects statement(s), the reason for the order and the actions being taken to comply with the order.*
- *If your system was operating under a DEP order (ACO or UAO) last year relating to water quality or water quantity issues such as; Do not drink orders; Boil Orders; Declarations of Water Emergency; SWTR Orders; include the reason for the order and actions being taken to comply with the order.*

Is My System Exempt from Meeting Certain Requirements?

[If your system operated under a variance or exemption at any time during the reporting year you must include the following information in your CCR. Refer to Drinking Water Regulations 310 CMR 22.13 or 22.14 for applicability. Delete this section if it does not apply to your system.]

- *Include an explanation of the variance or exemption;*
- *The date it was issued and reason why it was granted;*
- *A status report on what the system is doing to remedy the problem; and*
- *A notice to the public for input on the review or renewal of variance or exemption.*

VII. EDUCATIONAL INFORMATON

[Special educational statements are required to be included in your report for certain contaminant detections. Insert the following statements as applicable. Delete any statements that do not apply to your system.]

Do I Need To Be Concerned About Certain Contaminants Detected In My Water?

*[Insert the following statement if your water system detected **Lead** above the Action Level in more than 5%, and up to and including 10%, of the homes sampled.]*
***Lead**:* Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested and flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the Safe Drinking Water Hotline at 800.426.4791.

[Insert following statement if arsenic is detected above5 ppb, but below the 10 ppb MCL.]
***Arsenic**:* While your drinking water meets EPA's standard for arsenic, it does contain low levels of arsenic. EPA's standard balances the current understanding of arsenic's possible health effects against the cost of removing arsenic from drinking water. EPA continues to research the health effects of low levels of arsenic which is a mineral know to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.

[Insert the following statement if nitrate is detected above 5 ppm (50% of the MCL), but below the MCL]
***Nitrate**:* Nitrate in drinking water at levels above 10 ppm is a health risk for infants less than six months old. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant, you should ask for advice from your health care provider.

[Insert the following statement if Total Trihalomethanes is detected above 80 as an annual average (monitored and calculated under the provisions of 310 CMR 22.07).]
Total Trihalomethanes: Some people who drink water containing trihalomethanes in excess of the MCL over many years experience problems with their liver, kidneys, or central nervous systems, and may have increased risk of getting cancer.

[Include the following educational statement if your water system detected fluoride in the finished water above 2.0 ppm, but below the MCL of 4.0 ppm. This statement complies with the public notification requirements of 310 CMR 22.06C and 310 CMR 22.16]
Fluoride: This is an alert about your drinking water and a cosmetic dental problem that might affect children under nine years of age. At low levels, fluoride can help prevent cavities, but children drinking water containing more than 2 milligrams per liter (mg/l) of fluoride may develop cosmetic discoloration of their permanent teeth (dental fluorosis). The drinking water provided by your community water system *[name]* has a fluoride concentration of *[insert value]* mg/l. Dental fluorosis, in its moderate or severe

forms, may result in a brown staining and/or pitting of the permanent teeth. This problem occurs only in developing teeth, before they erupt from the gums. Children under nine should be provided with alternative sources of drinking water or water that has been treated to remove the fluoride to avoid the possibility of staining and pitting of their permanent teeth. You may also want to contact your dentist about proper use by young children of fluoride containing products. Older children and adults may safely drink the water. Drinking water containing more than 4 mg/l of fluoride (the U.S. Environmental Protection Agency's drinking water standard) can increase your risk of developing bone disease. Your drinking water does not contain more than 4 mg/l of fluoride, but we're required to notify you when we discover the fluoride levels in your drinking water to exceed 2 mg/l because of the cosmetic dental problem. Some home water treatment units are available to remove fluoride from drinking water. To learn more about available home water treatment units, you may call the NSF International at 1-877-8-NSF-HELP. For more information, please call *[name of water system contact]* at *[phone number]* or for additional information on fluoride in drinking water, contact the Massachusetts Department of Public Health, Office of Oral Health, 617-624-5943.

[If Radon is detected in finished water, you must include monitoring results; an explanation of the significance of the results; and the following health statement:]

Radon is a radioactive gas that you cannot see, taste, or smell. It is found throughout the U.S. Radon can move up through the ground and into a home through cracks and holes in the foundation. Radon can build up to high levels in all types of homes. Radon can also get into indoor air when released from tap water from showering, washing dishes, and other household activities. Compared to radon entering the home through soil, radon entering the home through tap water will in most cases be a small source of radon in indoor air. Radon is a known human carcinogen. Breathing air containing radon can lead to lung cancer. Drinking water containing radon can lead to lung cancer. Drinking water containing radon may also cause increase risk of stomach cancer. If you are concerned about radon in your home, test the air in your home. Testing is inexpensive and easy. Fix your home if the level of radon in your air is 4 picocuries per liter of air (pCi/l) or higher. There are simple ways to fix a radon problem that aren't too costly. For additional information, call the Massachusetts Department of Public Health, Radon Program at 413-586-7525 or call EPA's Radon Hotline (800-SOS-RADON).

[If Cryptosporidium is detected in raw or finished water, you must include: summary of results of monitoring; an explanation of the significance of the results; and the following health statement:]

Cryptosporidium is a microbial parasite found in surface water throughout the U.S. Although filtration removes Cryptosporidium, the most commonly used filtration methods cannot guarantee 100% removal. Our monitoring indicates the presence of these organisms in our source water and/or finished water. Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals are able to overcome the disease within a few weeks. However, immuno-compromised people have more difficulty and are at a greater risk of developing severe, life-threatening illness. Immuno-compromised individuals are encouraged to consult their doctor regarding appropriate precautions to take to prevent infection. Cryptosporidium must be ingested for it to cause disease, and may be passed through other means than drinking water.

*{**OPTIONAL**-Insert a statement on sodium if it is detected above the guideline of 20 ppb.}*

Sodium-sensitive individuals, such as those experiencing hypertension, kidney failure, or congestive heart failure, should be aware of the sodium levels where exposures are being carefully controlled.

*{**OPTIONAL**-Insert health statements on unregulated contaminants reported in your table if your results are at or near an established guideline or SMCL. Refer to Appendix D of the Guide for health statements.}*

VIII. ADDITIONAL INFORMATON

{Add any additional information that you feel would benefit your consumers. Take this opportunity to inform your consumers of work your system is doing to ensure safe drinking water. Examples noted below.}

- *Additional information on water treatment if your system provides treatment or adds chemicals to the water (such as fluoride) for reasons other than compliance purposes*
- *An additional statement on lead for those systems in compliance*
- *A simple map of your system and its sources to present a clear picture of system operation*
- *For those systems exceeding lead, insert additional lead public education materials to meet annual distribution requirements.*
- *Insert cross connection control educational language or materials to meet annual cross connection educational program requirements for residents, local officials and owners of cross connection devices.*
- *Information on voluntary or mandatory water use restrictions implemented last year or currently in effect.*

APPENDIX C - REGULATED CONTAMINANTS: MCLS, MCLGS, POTENTIAL SOURCES, AND REQUIRED HEALTH EFFECTS LANGUAGE

DETECTS OF ANY CONTAMINANTS ON THIS LIST MUST BE REPORTED IN YOUR CCR

Contaminant (CCR units)	Traditional MCL *	To convert for CCR, multiply by	MCL in CCR units	MCLG in CCR units	Major Sources in Drinking Water	Health Effects Language (To be included if a violation occurs)
Microbiological Contaminants						
(1) Total Coliform Bacteria	MCL: (systems that collect ≥40 samples/month) 5% of the monthly samples are positive; (systems that collect <40 samples/month) 1 positive monthly sample (CCR units do not apply)			0	Naturally present in the environment	Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other potentially harmful bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems.
(2) Fecal coliform and *E. coli*	MCL: a routine sample and a repeat sample are total coliform positive, and one is also fecal coliform or *E. coli* positive			0	Human and animal fecal waste	Fecal coliforms and *E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, and people with severely compromised immune systems.
(3) Total organic carbon	TT			n/a	Naturally present in the environment	Total organic carbon (TOC) has no health effects. However, total organic carbon provides a medium for the formation of disinfection byproducts. These byproducts include trihalomethanes (THMs) and haloacetic acids (HAAs). Drinking water containing these byproducts in excess of the MCL may lead to adverse health effects, liver or kidney problems, or nervous system effects and may lead to an increased risk of getting cancer.
(4) Turbidity	TT =5 NTU (systems that filter must also report); TT=at least 95%			n/a	Soil runoff	Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea and associated headaches.
Radioactive Contaminants						
(5) Beta/photon emitters (pCi/l)?	4 mrem/yr	-	50?	0	Decay of natural and man-made deposits	Certain minerals are radioactive and may emit forms of radiation known as photons and beta radiation. Some people who drink water containing beta and photon emitters in excess of the MCL over many years may have an increased risk of getting cancer.
(6) Alpha emitters (pCi/l) (If tested, subtract uranium (pCi/l) from gross alpha value)	15 pCi/l	-	15	0	Erosion of natural deposits	Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.

Contaminant (CCR units)	Traditional MCL *	To convert for CCR, multiply by	MCL in CCR units	MCLG in CCR units	Major Sources in Drinking Water	Health Effects Language (To be included if a violation occurs)
(7) Radium 226 & 228 combined (pCi/l) (Add 226 & 228 results together and report the combined value)	5 pCi/l	-	5	0	Erosion of natural deposits	Some people who drink water containing radium 226 or 228 in excess of the MCL over many years may have an increased risk of getting cancer.
(8) Uranium (ppb)	30 ppb	Convert pCi/l to ppb by: multiplying pCi/l by 1.49	30	0	Erosion of natural deposits	Some people who drink water containing uranium in excess of the MCL over many years may have an increased risk of getting cancer and kidney toxicity.
Inorganic Contaminants						
(9) Antimony (ppb)	.006	1000	6	6	Discharge from fire retardants; ceramics; electronics; solder	Some people who drink water containing antimony well in excess of the MCL over many years could experience increases in blood cholesterol and decreases in blood sugar.
(10) Arsenic (ppb)	.01	1000	10	n/a	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes	Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.
(11) Asbestos (MFL)	7 MFL	-	7	7	Decay of asbestos cement water mains; Erosion of natural deposits	Some people who drink water containing asbestos in excess of the MCL over many years may have an increased risk of developing benign intestinal polyps.
(12) Barium (ppm)	2	-	2	2	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits	Some people who drink water containing barium in excess of the MCL over many years could experience an increase in their blood pressure.
(13) Beryllium (ppb)	.004	1000	4	4	Discharge from electrical, aerospace, and defense industries; erosion of natural deposits	Some people who drink water containing beryllium well in excess of the MCL over many years could develop intestinal lesions.
(14) Cadmium (ppb)	.005	1000	5	5	Corrosion of galvanized pipes; Erosion of natural deposits; Discharge from metal refineries; Runoff from waste batteries and paints	Some people who drink water containing cadmium in excess of the MCL over many years could experience kidney damage.
(15) Chromium (ppb)	.1	1000	100	100	Discharge from pulp mills; Erosion of natural deposits	Some people who use water containing chromium well in excess of the MCL over many years could experience allergic dermatitis.
(16) Copper (ppm)	AL=1.3	-	AL=1.3	1.3	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives	Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.

Contaminant (CCR units)	Traditional MCL *	To convert for CCR, multiply by	MCL in CCR units	MCLG in CCR units	Major Sources in Drinking Water	Health Effects Language (To be included if a violation occurs)
(17) Cyanide (ppb)	.2	1000	200	200	Discharge from metal factories; Discharge from plastic and fertilizer factories	Some people who drink water containing cyanide well in excess of the MCL over many years could experience nerve damage or problems with their thyroid.
(18) Fluoride (ppm)	4	-	4	4	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories	Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Children may get mottled teeth.
(19) Lead (ppb)	AL=. 015	1000	AL=15	0	Corrosion of household plumbing systems; Erosion of natural deposits	Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.
(20) Mercury [inorganic] (ppb)	.002	1000	2	2	Erosion of natural deposits; Discharge from refineries and factories; Runoff from landfills; Runoff from cropland	Some people who drink water containing inorganic mercury well in excess of the MCL over many years could experience kidney damage.
(21) Nickel	No MCL	Refer to Table D-1 for nickel health advisory level			Discharge from industrial processes	Some people who drink water containing nickel at high concentrations for many years could experience decreased body weight, heart and liver damage, and dermatitis.
(22) Nitrate (ppm)	10	-	10	10	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits	Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.
(23) Nitrite (ppm)	1	-	1	1	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits	Infants below the age of six months who drink water containing nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.
(24) Selenium (ppb)	.05	1000	50	50	Discharge from metal refineries; Erosion of natural deposits; Discharge from mines	Selenium is an essential nutrient. However, some people who drink water containing selenium in excess of the MCL over many years could experience hair or fingernail losses, numbness in fingers or toes, or problems with their circulation.
(25) Thallium (ppb)	.002	1000	2	0.5	Leaching from ore-processing sites; Discharge from electronics, glass, and drug factories	Some people who drink water containing thallium in excess of the MCL over many years could experience hair loss, changes in their blood, or problems with their kidneys, intestines, or liver.
Synthetic Organic Contaminants including Pesticides and Herbicides						
(26) 2,4-D (ppb)	.07	1000	70	70	Runoff from herbicide used on row crops	Some people who drink water containing the weed killer 2,4-D well in excess of the MCL over many years could experience problems with their kidneys, liver, or adrenal glands.
(27) 2,4,5-TP [Silvex](ppb)	.05	1000	50	50	Residue of banned herbicide	Some people who drink water containing silvex in excess of the MCL over many years could experience liver problems.

Contaminant (CCR units)	Traditional MCL *	To convert for CCR, multiply by	MCL in CCR units	MCLG in CCR units	Major Sources in Drinking Water	Health Effects Language (To be included if a violation occurs)
(28) Acrylamide	TT=0.05% dosed at 1 ppm	100	TT=5%	0	Added to water during sewage/ wastewater treatment	Some people who drink water containing high levels of acrylamide over a long period of time could have problems with their nervous system or blood, and may have an increased risk of getting cancer.
(29) Alachlor (ppb)	.002	1000	2	0	Runoff from herbicide used on row crops	Some people who drink water containing alachlor in excess of the MCL over many years could have problems with their eyes, liver, kidneys, or spleen, or experience anemia, and may have an increased risk of getting cancer.
(30) Atrazine (ppb)	.003	1000	3	3	Runoff from herbicide used on row crops	Some people who drink water containing atrazine well in excess of the MCL over many years could experience problems with their cardiovascular system or reproductive difficulties.
(31) Benzo(a)pyrene [PAH] (ppt)	.0002	1,000,000	200	0	Leaching from linings of water storage tanks and distribution lines	Some people who drink water containing benzo(a)pyrene in excess of the MCL over many years may experience reproductive difficulties and may have an increased risk of getting cancer.
(32) Carbofuran (ppb)	.04	1000	40	40	Leaching of soil fumigant used on rice and alfalfa	Some people who drink water containing carbofuran in excess of the MCL over many years could experience problems with their blood, or nervous or reproductive systems.
(33) Chlordane (ppb)	.002	1000	2	0	Residue of banned termiticide	Some people who drink water containing chlordane in excess of the MCL over many years could experience problems with their liver or nervous system, and may have an increased risk of getting cancer.
(34) Dalapon (ppb)	.2	1000	200	200	Runoff from herbicide used on rights of way	Some people who drink water containing dalapon well in excess of the MCL over many years could experience minor kidney changes.
(35) Di(2-ethylhexyl) adipate (ppb)	.4	1000	400	400	Discharge from chemical factories	Some people who drink water containing di (2-ethylhexyl) adipate well in excess of the MCL over many years could experience general toxic effects or reproductive difficulties.
(36) Di(2-ethylhexyl) phthalate (ppb)	.006	1000	6	0	Discharge from rubber and chemical factories	Some people who drink water containing di (2-ethylhexyl) phthalate in excess of the MCL over many years may have problems with their liver, or experience reproductive difficulties, and may have an increased risk of getting cancer.
(37) Dibromochloropropane (ppt)	.0002	1,000,000	200	0	Runoff/leaching from soil fumigant used on soybeans, cotton, and orchards	Some people who drink water containing DBCP in excess of the MCL over many years could experience reproductive problems and may have an increased risk of getting cancer.
(38) Dinoseb (ppb)	.007	1000	7	7	Runoff from herbicide used on soybeans and vegetables	Some people who drink water containing dinoseb well in excess of the MCL over many years could experience reproductive difficulties.
(39) Diquat (ppb)	.02	1000	20	20	Runoff from herbicide use	Some people who drink water containing diquat in excess of the MCL over many years could get cataracts.
(40) Dioxin [2,3,7,8-TCDD] (ppq)	.00000003	1,000,000,000	30	0	Emissions from waste incineration and other combustion; Discharge from chemical factories	Some people who drink water containing dioxin in excess of the MCL over many years could experience reproductive difficulties and may have an increased risk of getting cancer.

Contaminant (CCR units)	Traditional MCL *	To convert for CCR, multiply by	MCL in CCR units	MCLG in CCR units	Major Sources in Drinking Water	Health Effects Language (To be included if a violation occurs)
(41) Endothall (ppb)	.1	1000	100	100	Runoff from herbicide use	Some people who drink water containing endothall in excess of the MCL over many years could experience problems with their stomach or intestines.
(42) Endrin (ppb)	.002	1000	2	2	Residue of banned insecticide	Some people who drink water containing endrin in excess of the MCL over many years could experience liver problems.
(43) Epichlorohydrin	TT=0.01% dosed at 20 ppm	100	TT=1%	0	Discharge from industrial chemical factories; An impurity of some water treatment chemicals	Some people who drink water containing high levels of epichlorohydrin over a long period of time could experience stomach problems, and may have an increased risk of getting cancer.
(44) Ethylene dibromide (ppt)	.00002	1,000,000	20	0	Residue of leaded gasoline or runoff from soil fumigant used on tobacco or strawberries	Some people who drink water containing ethylene dibromide in excess of the MCL over many years could experience problems with their liver, stomach, reproductive system, or kidneys, and may have an increased risk of getting cancer.
(45) Glyphosate (ppb)	.7	1000	700	700	Runoff from herbicide use	Some people who drink water containing glyphosate in excess of the MCL over many years could experience problems with their kidneys or reproductive difficulties.
(46) Heptachlor (ppt)	.0004	1,000,000	400	0	Residue of banned pesticide	Some people who drink water containing heptachlor in excess of the MCL over many years could experience liver damage and may have an increased risk of getting cancer.
(47) Heptachlor epoxide (ppt)	.0002	1,000,000	200	0	Breakdown of heptachlor	Some people who drink water containing heptachlor epoxide in excess of the MCL over many years could experience liver damage, and may have an increased risk of getting cancer.
(48) Hexachlorobenzene (ppb)	.001	1000	1	0	Discharge from metal refineries and agricultural chemical factories	Some people who drink water containing hexachlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys, or adverse reproductive effects, and may have an increased risk of getting cancer.
(49) Hexachlorocyclopentadiene (ppb)	.05	1000	50	50	Discharge from chemical factories	Some people who drink water containing hexachlorocyclopentadiene well in excess of the MCL over many years could experience problems with their kidneys or stomach.
(50) Lindane (ppt)	.0002	1,000,000	200	200	Runoff/leaching from insecticide used on cattle, lumber, gardens	Some people who drink water containing lindane in excess of the MCL over many years could experience problems with their kidneys or liver.
(51) Methoxychlor (ppb)	.04	1000	40	40	Runoff/leaching from insecticide used on fruits, vegetables, alfalfa, livestock	Some people who drink water containing methoxychlor in excess of the MCL over many years could experience reproductive difficulties.
(52) Oxamyl [Vydate] (ppb)	.2	1000	200	200	Runoff/leaching from insecticide used on apples, potatoes and tomatoes	Some people who drink water containing oxamyl in excess of the MCL over many years could experience slight nervous system effects.

Contaminant (CCR units)	Traditional MCL *	To convert for CCR, multiply by	MCL in CCR units	MCLG in CCR units	Major Sources in Drinking Water	Health Effects Language (To be included if a violation occurs)
(53) PCBs [Polychlorinated biphenyls] (ppt)	.0005	1,000,000	500	0	Runoff from landfills; Discharge of waste chemicals; residue of banned use in electrical transformers	Some people who drink water containing PCBs in excess of the MCL over many years could experience changes in their skin, problems with their thymus gland, immune deficiencies, or reproductive or nervous system difficulties, and may have an increased risk of getting cancer.
(54) Pentachlorophenol (ppb)	.001	1000	1	0	Discharge from wood preserving factories	Some people who drink water containing pentachlorophenol in excess of the MCL over many years could experience problems with their liver or kidneys, and may have an increased risk of getting cancer.
(55) Picloram (ppb)	.5	1000	500	500	Herbicide runoff	Some people who drink water containing picloram in excess of the MCL over many years could experience problems with their liver.
(56) Simazine (ppb)	.004	1000	4	4	Herbicide runoff	Some people who drink water containing simazine in excess of the MCL over many years could experience problems with their blood.
(57) Toxaphene (ppb)	.003	1000	3	0	Runoff/leaching from insecticide used on cotton and cattle	Some people who drink water containing toxaphene in excess of the MCL over many years could have problems with their kidneys, liver, or thyroid, and may have an increased risk of getting cancer.
Volatile Organic Contaminants						
(58) Benzene (ppb)	.005	1000	5	0	Discharge from factories; Leaching from gas storage tanks and landfills	Some people who drink water containing benzene in excess of the MCL over many years could experience anemia or a decrease in blood platelets, and may have an increased risk of getting cancer.
(59) Bromate (ppb)	.010	1000	10	0	Byproduct of drinking water chlorination	Some people who drink water containing bromate in excess of the MCL over many years have an increased risk of getting cancer.
(60) Carbon tetrachloride (ppb)	.005	1000	5	0	Discharge from chemical plants and other industrial activities	Some people who drink water containing carbon tetrachloride in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer.
(61) Chloramines (ppm)	MRDL= 4	-	MRDL= 4	MRDLG= 4	Water additive used to control microbes	Some people who use water containing chloramines well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chloramines well in excess of the MRDL could experience stomach discomfort or anemia.
(62) Chlorine (ppm)	MRDL= 4	-	MRDL= 4	MRDLG= 4	Water additive used to control microbes	Some people who use water containing chlorine well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chlorine well in excess of the MRDL could experience stomach discomfort.
(63) Chlorite (ppm)	1	-	1	0.8	Byproduct of drinking water chlorination	Some infants and young children who drink water containing chlorite in excess of the MCL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorite in excess of the MCL. Some people may experience anemia.

Contaminant (CCR units)	Traditional MCL *	To convert for CCR, multiply by	MCL in CCR units	MCLG in CCR units	Major Sources in Drinking Water	Health Effects Language (To be included if a violation occurs)
(64) Chlorine dioxide (ppb)	MRDL= 0.8	1000	800	MRDLG= 800	Water additive used to control microbes	Some infants and young children who drink water containing chlorine dioxide in excess of the MRDL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorine dioxide in excess of the MRDL. Some people may experience anemia.
(65) Chlorobenzene (ppb)	.1	1000	100	100	Discharge from chemical and agricultural chemical factories	Some people who drink water containing chlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys.
(66) o-Dichlorobenzene (ppb)	.6	1000	600	600	Discharge from industrial chemical factories	Some people who drink water containing o-dichlorobenzene well in excess of the MCL over many years could experience problems with their liver, kidneys, or circulatory systems.
(67) p-Dichlorobenzene (ppb)	.005	1000	5	5	Discharge from industrial chemical factories	Some people who drink water containing p-dichlorobenzene in excess of the MCL over many years could experience anemia, damage to their liver, kidneys, or spleen, or changes in their blood.
(68) 1,2-Dichloroethane (ppb)	.005	1000	5	0	Discharge from industrial chemical factories	Some people who drink water containing 1,2-dichloroethane in excess of the MCL over many years may have an increased risk of getting cancer.
(69) 1,1-Dichloroethylene (ppb)	.007	1000	7	7	Discharge from industrial chemical factories	Some people who drink water containing 1,1-dichloroethylene in excess of the MCL over many years could experience problems with their liver.
(70) cis-1,2-Dichloroethylene (ppb)	.07	1000	70	70	Breakdown product of trichloroethylene and tetrachloroethylene	Some people who drink water containing cis-1,2-dichloroethylene in excess of the MCL over many years could experience problems with their liver.
(71) trans-1,2-Dichloroethylene (ppb)	.1	1000	100	100	Discharge from industrial chemical factories	Some people who drink water containing trans-1,2-dichloroethylene well in excess of the MCL over many years could experience problems with their liver.
(72) Dichloromethane (ppb)	.005	1000	5	0	Discharge from pharmaceutical and chemical factories	Some people who drink water containing dichloromethane in excess of the MCL over many years could have liver problems and may have an increased risk of getting cancer.
(73) 1,2-Dichloropropane (ppb)	.005	1000	5	0	Discharge from industrial chemical factories	Some people who drink water containing 1,2-dichloropropane in excess of the MCL over many years may have an increased risk of getting cancer.
(74) Ethylbenzene (ppb)	.7	1000	700	700	Leaks and spills from gasoline and petroleum storage tanks	Some people who drink water containing ethylbenzene well in excess of the MCL over many years could experience problems with their liver or kidneys.
(75) Haloacetic Acids (HAA5) (ppb)	.060	1000	60	n/a	Byproduct of drinking water disinfection	Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.

Contaminant (CCR units)	Traditional MCL *	To convert for CCR, multiply by	MCL in CCR units	MCLG in CCR units	Major Sources in Drinking Water	Health Effects Language (To be included if a violation occurs)
(76) Styrene (ppb)	.1	1000	100	100	Discharge from rubber and plastic factories; Leaching from landfills	Some people who drink water containing styrene well in excess of the MCL over many years could have problems with their liver, kidneys, or circulatory system.
(77) Tetrachloroethylene (ppb)	.005	1000	5	0	Discharge from factories and dry cleaners	Some people who drink water containing tetrachloroethylene in excess of the MCL over many years could have problems with their liver, and may have an increased risk of getting cancer.
(78) 1,2,4-Trichlorobenzene (ppb)	.07	1000	70	70	Discharge from textile-finishing factories	Some people who drink water containing 1,2,4-trichlorobenzene well in excess of the MCL over many years could experience changes in their adrenal glands.
(79) 1,1,1-Trichloroethane (ppb)	.2	1000	200	200	Discharge from use in septic system cleaners	Some people who drink water containing 1,1,1-trichloroethane in excess of the MCL over many years could experience problems with their liver, nervous system, or circulatory system.
(80) 1,1,2-Trichloroethane (ppb)	.005	1000	5	3	Discharge from industrial chemical factories	Some people who drink water containing 1,1,2-trichloroethane well in excess of the MCL over many years could have problems with their liver, kidneys, or immune systems.
(81) Trichloroethylene (ppb)	.005	1000	5	0	Discharge from metal degreasing sites and other factories	Some people who drink water containing trichloroethylene in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer.
(82) TTHMs [Total trihalomethanes] (ppb)	.10/.080	1000	100/80	n/a	By-product of drinking water chlorination	Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer.
(83) Toluene (ppm)	1	-	1	1	Leaks and spills from gasoline and petroleum storage tanks; discharge from petroleum factories	Some people who drink water containing toluene well in excess of the MCL over many years could have problems with their nervous system, kidneys, or liver.
(84) Vinyl Chloride (ppb)	.002	1000	2	0	Leaching from PVC piping; Discharge from plastics factories	Some people who drink water containing vinyl chloride in excess of the MCL over many years may have an increased risk of getting cancer.
(85) Xylenes (ppm)	10	-	10	10	Leaks and spills from gasoline and petroleum storage tanks; Discharge from petroleum factories; Discharge from chemical factories	Some people who drink water containing xylenes in excess of the MCL over many years could experience damage to their nervous system.

* Not all contaminants listed have MCLs. Some have Treatment Technique (TT) levels, Action Levels (AL)s, or Maximum Residual Disinfectant Levels (MRDL)s.

? The MCL for beta particles is 4 mrem/year. EPA considers 50 pCi/l to be the level of concern for beta particles.

Contaminant (CCR units)	Traditional MCL *	To convert for CCR, multiply by	MCL in CCR units	MCLG in CCR units	Major Sources in Drinking Water	Health Effects Language (To be included if a violation occurs)

Key

AL	Action Level
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
MFL	million fibers per liter
MRDL	Maximum Residual Disinfectant Level
MRDLG	Maximum residual Disinfectant Level Goal
n/a	Not Applicable
mrem/year	millirems per year (a measure of radiation absorbed by the body)
NTU	Nephelometric Turbidity Units
pCi/l	picocuries per liter (a measure of radioactivity)
ppm	parts per million, or milligrams per liter (mg/l)
ppb	parts per billion, or micrograms per liter (µg/l)
ppt	parts per trillion, or nanograms per liter
ppq	parts per quadrillion, or picograms per liter
TT	Treatment Technique

APPENDIX D – UNREGULATED CONTAMINANTS, SECONDARY CONTAMINANTS, AND CONTAMINANTS WITH HEALTH ADVISORY LEVELS

Remember: Do not mark exceedances of SMCLs or ORSGs as violations in your CCR

D-1 UNREGULATED CONTAMINANTS/CONTAMINANTS WITH HEALTH ADVISORY LEVELS

CASRN: Chemical Abstract Service Registry Number ORSG: Office of Research & Standards Guideline

CHEMICAL (CASRN)	ORSG if applicable	SOURCE TO DRINKING WATER	HEALTH EFFECTS
Aldrin (309002)		Runoff from insecticide use	Some people who drink water containing aldrin in high concentrations for many years could experience liver damage, kidney effects.
Bromobenzene (108861)		Discharge from use in chemical manufacturing	Some people who drink water containing bromobenzene in high concentrations of bromobenzene for many years could experience central nervous system effects
Bromomethane (74839)	10 ppb	Runoff from use as a fumigant	Some people who drink water containing bromomethane at high concentrations for many years could experience digestive tract effects and headaches.
Bromodichloromethane (75274)		Trihalomethane; byproduct of drinking water chlorination	Some people who drink water containing bromodichloromethane at high concentrations for many years could experience liver and kidney problems.
Bromoform (75252)		Trihalomethane; byproduct of drinking water chlorination	Some people who drink water containing bromofom at high concentrations for many years could experience liver and kidney problems.
Butachlor (23184669)		Runoff from use as a herbicide	Some people who drink water containing butachlor at high concentrations for many years could experience liver effects.
Butylbenzene Isomers (*n;sec;tert*)		Runoff from industrial use	Some people who drink water containing butylbenzene isomers at high concentrations for many years for many years could experience central nervous system effects.
Carbaryl (63252)		Runoff fromuse as an insecticide	Some people who drink water containing carbaryl at high concentrations for many years for many years could experience kidney and liver effects.
Chloroethane (75003)		Discharge from industrial uses	Some people who drink water containing chloroethane at high concentrations for many years could experience dizziness, nausea, and vomiting.
Chloroform (67663)	70 ppb for non-chlorinated water supplies only	Transportation release or spill; industrial or domestic release; unlawful disposal; naturally occurring process	The latest EPA guidance has identified a drinking water exposure limit of 70 ppb which should be protective of any adverse effects with long term-exposure. Some people who drink water containing chloroform at high concentrations for many years could experience liver and kidney problems and may have an increased risk of cancer.
Chloroform (67663)		Trihalomethane; byproduct of drinking water chlorination	Some people who drink water containing chloroform at high concentrations for many years could experience liver and kidney problems and may have an increased risk of cancer.
Chloromethane (74873)		Discharge from industrial uses	Some people who drink water containing chloromethane at high concentrations for many years could experience dizziness and fatigue.
o-chlorotoluene		Discharge from industrial uses	Some people who drink water containing o-chlorotoluene at high concentrations for

CHEMICAL (CASRN)	ORSG if applicable	SOURCE TO DRINKING WATER	HEALTH EFFECTS
(95498)			many years could experience central nervous system effects.
Dibromochloromethane (124481)		Trihalomethane; byproduct of drinking water chlorination	Some people who drink water containing dibromochloromethane at high concentrations for many years could experience liver and kidney problems.
Dicamba (1918009)		Runoff from use as a herbicide	Some people who drink water containing dicamba at high concentrations for many years could experience central nervous system effects.
m-Dichlorobenzene (541731)		Discharge from use in chemical manufacturing	Some people who drink water containing m-dichlorobenzene at high concentrations for many years could experience damage to red blood cells.
Dichlorodifluoromethane (Freon 12) (75718)	1400 ppb	Discharge from use as a refrigerant	Some people who drink water containing dichlorodifluoromethane at high concentrations for many years could experience dizziness and headaches.
1,1-Dichloroethane (75343)	70 ppb	Discharge from use as a degreasing agent	Some people who drink water containing 1,1-dichloroethane at high concentrations for many years could experience liver and kidney effects.
2,2-Dichloropropane		Discharge from use in chemical manufacturing	Some people who drink water containing 2,2-dichloropropane at high concentrations for many years could experience central nervous system effects.
1,3-Dichloropropane (142289)		Discharge from use in chemical manufacturing	Some people who drink water containing 1,3-dichloropropane at high concentrations for many years could experience central nervous system effects.
1,1-Dichloropropene (542756)	0.5 ppb	Discharge from use in chemical manufacturing	Some people who drink water containing 1,1-dichloropropene at high concentrations for many years could experience central nervous system effects.
1,3-Dichloropropene (*cis,trans*) (542756)	0.5 ppb	Runoff from use as a nematocide	Some people who drink water containing *cis* and *trans*-1.3-dichloropropene at high concentrations for many years could experience irritation of the eyes, ears, nose and throat or cancer.
Dieldrin (60571)		Runoff from pesticide application	Some people who drink water containing dieldrin at high concentrations for many years could experience liver damage, convulsions, or cancer.
Hexachlorobutadiene (87683)		Discharge from use as an industrial solvent	Some people who drink water containing hexachlorobutadiene at high concentrations for many years could experience kidney effects and effects on the fetus.
3-hydroxycarbofuran		Breakdown product from the use of the pesticide carboxyfuran	Some people who drink water containing 3-hydroxycarbofuran at high concentrations for many years could experience liver effects.
Isopropylbenzene (98828)		Discharge from chemical manufacturing	Some people who drink water containing isopropylbenzene at high concentrations for many years could experience central nervous system effects.
Isopropyltoluene		Discharge from chemical manufacturing	Some people who drink water containing isopropyltoluene at high concentrations for many years may experience central nervous system effects.
Methomyl (16752775)		Runoff from use as an insecticide	Some people who drink water containing methomyl at high concentrations for many years could experience kidney effects.
Metolachlor (51218452)	100 ppb	Runoff from use as a herbicide	Some people who drink water containing metolachlor at high concentrations for many years could experience cancer.
Metribuzin (21087649)		Runoff from use as a herbicide	Some people who drink water containing metribuzin at high concentrations for many years could experience liver and kidney effects.

CHEMICAL (CASRN)	ORSG if applicable	SOURCE TO DRINKING WATER	HEALTH EFFECTS
Methyl Tertiary Butyl Ether (MTBE)	70 ppb	Fuel additive; leaks and spills from gasoline storage tanks	The Massachusetts Office of Research and Standards has adopted a guideline of 70 µg/L (ppb) as a health protective concentration for MTBE in drinking water. MTBE also has a secondary MCL of 20-40 ppb.
Naphthalene (91203)	140 ppb	Discharge from use in mothballs and other domestic products	Some people who drink water containing naphthalene at high concentrations for many years could experience damage to red blood cells, nausea and vomiting.
Nickel (7440020)	0.1 ppm	Discharge from industrial processes	Some people who drink water containing nickel at high concentrations for many years could experience decreased body weight, heart and liver damage, and dermatitis.
Propachlor (1918167)		Run-off from use as a herbicide	Some people who drink water containing propachlor at high concentrations for many years could experience liver effects.
n-propylbenzene (103651)		Discharge from chemical manufacturing	Some people who drink water containing n-propylbenzene at high concentrations for many years may experience central nervous system effects.
Radon 222 (14859677)	10,000 pCi/L	Natural sources	See suggested language in text on page 19.
Sodium (7440235)	20 ppm	Natural sources; runoff from use as salt on roadways; by-product of treatment process	Sodium sensitive individuals such as those experiencing hypertension, kidney failure, or congestive heart failure, who drink water containing sodium should be aware of levels where exposures are being carefully controlled.
Sulfate		Natural sources	Some people who drink water containing sulfate at high concentrations for many years could experience diarrhea.
1,1,1,2-Tetrachloroethane (630206)		Discharge from use in chemical manufacturing	Some people who drink water containing 1,1,1,2-tetrachloroethane at high concentrations for many years could experience liver effects.
1,1,2,2-tetrachloroethane (79345)		Discharge from use in dry cleaning	Some people who drink water containing 1,1,2,2-tetrachloroethane at high concentrations for many years could experience nausea, vomiting and liver damage.
1,2,3-trichlorobenzene		Discharge from use in chemical manufacturing	Some people who drink water containing 1,2,3-trichlorobenzene at high concentrations for many years could experience liver effects.
Trichlorofluoromethane (Freon 11) (75694)		Discharge from use as a refrigerant	Some people who drink water containing trichlorofluoromethane at high concentrations for many years could experience central nervous system effects.
1,2,3-trichloropropane (96184)		Discharge from use in paint and varnish removers	Some people who drink water containing 1,2,3-trichloropropane at high concentrations for many years could experience liver damage.
1,2,4-trimethylbenzene (95636)		Discharge from use in dyes and paints	Some people who drink water containing 1,2,4-trimethylbenzene at high concentrations for many years could experience central nervous system effects.
1,3,5-trimethylbenzene (108678)		Discharge from use in chemical manufacturing	Some people who drink water containing 1,3,5-trimethylbenzene at high concentrations for many years could experience central nervous system effects.

One of the reasons these chemical are currently "unregulated" is that there is usually little toxicity information available for these compounds. Please contact the Office of Research and Standards (ORS) at (617) 292-5570 for health risk information on these chemicals.

D-2 SECONDARY CONTAMINANTS

CHEMICAL	SECONDARY MCL (SMCL) if applicable	SOURCE TO DRINKING WATER	HEALTH EFFECTS
Aluminum (ppm)	0.05-0.2	Byproduct of treatment process	Under certain conditions, aluminum can be part of a neurotoxic compound. The long-term accumulation of aluminum in the bloodstream, a condition frequently suffered by kidney dialysis patients, can result in severe encephalopathy, leading to dementia. Evidence linking aluminum with other neurological disorders is either limited or unavailable.
Chloride (ppm)	250	Runoff from road de-icing, use of inorganic fertilizers, landfill leachates, septic tank effluents, animal feeds, industrial effluents, irrigation drainage, and seawater intrusion in coastal areas	Chloride toxicity has not been observed in humans except in the special case of impaired sodium chloride metabolism, e.g. in congestive heart failure (13). Healthy individuals can tolerate the intake of large quantities of chloride provided that there is a concomitant intake of fresh water. Little is known about the effect of prolonged intake of large amounts of chloride in the diet.
Color (C.U.)	15 Color Units	Naturally occurring organic material	
Copper (ppm)	1 (at POE to distribution system)	Erosion of natural deposits; Leaching from wood preservatives0	Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.
Corrosivity	Non-corrosive		
Fluoride (ppm)	2.0	Naturally occurring; additive to promote dental health	See required language in text on page 19.
Foaming Agents (ppm)	0.5		
Iron (ppm)	0.3	Naturally occurring, corrosion of cast iron pipes	Iron is an essential element in human nutrition. Estimates of the minimum daily requirement for iron depend on age, sex, physiological status, and iron bioavailability and range from about 10 to 50 mg/day.
Manganese (ppm)	0.05	Erosion of natural deposits	Manganese is an essential trace element with an estimated daily nutritional requirement of 30–50 µg/kg of body weight. Evidence of manganese neurotoxicity has been seen in miners following prolonged exposure to dusts containing manganese. There is no convincing evidence of toxicity in humans associated with the consumption of manganese in drinking-water, but only limited studies are available.
Methyl Tertiary Butyl Ether (MTBE) (ppm)	0.02 – 0.04	Fuel additive	The Massachusetts Office of Research and Standards has adopted a guideline of 70 ug/L (ppb) as a health protective concentration for MTBE in drinking water. Taste and odor thresholds for MTBE may occur at lower levels and, therefore Massachusetts has adopted a secondary standard of 20 ppb – 40 ppb for non health-based considerations. For additional information, call the Massachusetts Office of Research and Standards, 617-292-5570
Odor	3 T.O.N.	Decay of natural organic matter.	
PH	6.5-8.5		
Silver (ppm)	0.10	Erosion of natural deposits	The only obvious sign of silver overload is argyria, a condition in which skin and hair are

CHEMICAL	SECONDARY MCL (SMCL) if applicable	SOURCE TO DRINKING WATER	HEALTH EFFECTS
			heavily discolored by silver in the tissues. The low levels of silver in drinking-water, generally below 5 µg/litre, are not relevant to human health with respect to argyria. On the other hand, special situations exist where silver salts may be used to maintain the bacteriological quality of drinking-water. Higher levels of silver, up to 0.1 mg/litre, could be tolerated in such cases without risk to health.
Sulfate (ppm)	250	Natural sources	Some people who drink water containing sulfate at high concentrations for many years could experience diarrhea.
Total Dissolved Solids (TDS) (ppm)	500	Erosion of natural deposits.	
Zinc (ppm)	5	Erosion of natural deposits, leaching from plumbing materials	Zinc is an essential nutrient. The daily requirement for adult men is 15–20 mg/day. It was considered that, taking into account recent studies on humans, the derivation of a health-based guideline value is not required at this time. Zinc imparts an undesirable astringent taste to water above concentrations of 4 mg/litre (as zinc sulfate).

D-3 INFORMATION COLLECTION RULE DISINFECTION BY-PRODUCTS

Contaminant Grouping	Chemicals to report if found in the finished water
THM4:	Total Trihalomethanes
HAA5:	Total Haloacetic Acids
HAN:	**Total Haloacetilenitriles**
HK:	Total haloketones
CP	Chloropicrin
CH	Chloral hydrate
TOX	Total Organic halides
Disinfectant Residuals	
Chloramines	Cyanogen Chloride
Hypochlorite Solutions	Chlorate
Ozone	Bromate, Aldehydes
Chlorine Dioxide	Chlorine Dioxide residual, Chlorite, Chlorate, Bromate, Aldehydes

Appendix E – Interpreting Monitoring Data

{tc \l2 "Interpreting Monitoring Data}

Remember, the goal is to provide the highest concentration upon which **compliance with an MCL, TT, AL or MRDL is based**. Below are examples of how systems determine the highest compliance value and the range of detected levels of contaminants under the following monitoring scenarios:

1). Compliance with the MCL is determined annually or less frequently.

★ 1 sampling site/1sampling date.

March 1999 - 0.003
REPORT IN TABLE: Highest Detected Level = 0.003. Report no range

.

★ Multiple sampling sites/1 sampling date.

Barium	Feb 1998
well #1	0.60
well #2	0.46
well #3	ND
REPORT IN TABLE: Highest Level = 0.60 AND Range = ND - 0.60	

2). Compliance with the MCL is determined by multiple sampling dates in one year (source samples)

★ 1 sampling site/multiple sampling dates.

Nitrate	Sample #1	Sample #2	Sample #3	Sample #4	**Source Average**
well #1	**0.8**	**3.8**	2.1	0.9	**1.9**
REPORT IN TABLE: Average of all samples = 1.9 AND Range = 0.8 - 3.8					

★ multiple sampling site/multiple sampling dates.

Nitrate	Sample #1	Sample #2	Sample #3	Sample #4	**Source Average**
Well #1	2	2.5	1.9	2.4	2.2
Well #2	**ND**	1.2	ND	1.5	0.7
Well #3	3	**4.2**	2.9	3.3	**3.4**
REPORT IN TABLE: Highest Source Average = 3.4 AND Range = ND - 4.2					

★ Special Case for Nitrate and Nitrite: when nitrate and nitrite samples exceeded the MCL and confirmation samples were taken, report in the table the range of results and the average of those two samples.

Nitrate	Sample #1	Confirmation Sample	**Source average**
Well #1	**12**	10.4	**11.2**
Well #2	1.3	Not required	Not required
REPORT IN TABLE: Highest Average of above MCL and confirmation sample = 11.2 AND Range = 1.3 - 12			

4). Compliance with MCL determined by a running annual average of all samples taken from a source sampling point.(such as quarterly monitoring for VOCs or SOCs).

★ 1 sampling site/multiple sampling dates

Atrazine	1st quarter	2nd quarter	3rd quarter	4th quarter
well #1	**0.8**	**3.8**	2.1	0.9
4Q Running average	1.3	1.8	**2.2**	1.9
REPORT IN TABLE: Highest running average = 2.2 AND Range = 0.8 - 3.8				

★ Multiple sampling sites/multiple sampling dates

Atrazine	1st quarter	2nd quarter	3rd quarter	4th quarter
well #1	0.8	**3.8**	2.1	0.9
Running average	1.3	1.8	**2.2**	1.9
Well #2	**ND**	0.5	1	ND
Running average			0.5	0.4
REPORT IN TABLE: Highest running average = 2.2 AND Range = ND - 3.8				

5). Compliance with MCL determined by a running annual average of all samples at all distribution sampling points - TTHMs or HAA5s.

★ Multiple sampling sites/multiple sampling dates.

TTHMs	2nd quarter 1998	3rd quarter 1998	4th quarter 1998	1st quarter 1999	2nd quarter 1999	3rd quarter 1999	4th quarter 1999
site #1	-	-	-	45	60	125	70
site #2	-	-	-	**40**	55	115	60
site #3	-	-	-	45	60	105	70
site #4	-	-	-	50	65	**135**	80
Quarterly Average	55	125	65	45	60	120	70
Running Annual Average	-	-	-	73	74	73	**74**
REPORT IN TABLE: Highest Annual Average = 74 AND Range = 40 -135							

Note: The last 3 quarters of 1998 are shown because they are needed to compute the running annual average. The reported range would include only detection data from 1999, unless one of the values from the previous year was so extraordinary that consumers would need it to understand the reported annual average.

Note: if any of the above values for the running annual average were above 80 (the revised MCL for TTHMs, effective in 2001) the report would need to include health effects language for TTHMs, even though the system was not actually in violation yet.

6). Lead and Copper

★ If a system detects either lead or copper, the CCR must include the 90th percentile value from the most recent sampling and the number of sampling sites exceeding the action level

★ **90th Percentile Level**.

	site 1	site 2	site 3	site 4	site 5	site 6	site 7	site 8	site 9	Site 10
July 1998	nd	nd	8	12	**19**	3	nd	nd	4	22
REPORT IN TABLE: 90th percentile = 19 AND Number of Sites above AL (15) = 2										

EPA defines the 90th Percentile as the equation:

(Number of samples) x (0.9) = the sample corresponding to the 90th percentile.

The sample results are ranked from highest to lowest: 22, 19, 12, 8, 4, 3, 0, 0, 0, 0
Therefore, if a system collects 10 samples, the 90th percentile would be the 9th highest sample (10 x 0.9). In the example above, the detect value of 19 is the 9th highest value in the 10 sites sampled.

★ **Format of Lead and Copper Table**

	Date(s) Collected	90th percentile	Action Level	MCLG	# of sites sampled	# of sites above the AL	Possible source(s) of contamination
Lead (ppb)			15	0			Corrosion of household plumbing systems; Erosion of natural deposits
Copper (ppm)			1.3	1.3			Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives

★ **Educational Statement for Lead**

If lead is detected above the action level in more than 5 percent, and up to and including 10 percent of homes sampled, the statement about the impact of lead on children provided in this CCR guidance document on Page 24 must be included in the CCR.

★ **Health Effects Language for Lead and Copper**

Explanations of action level exceedances or violations must include potential health effects language for lead and/or copper provided in Appendix C of this guidance.

7). Turbidity

★ When reported as a MCL for systems that must install filtration but have not, include the highest monthly average for turbidity measurements collected during the last calendar year.

	MCL	Highest Monthly Average	Violation (Y/N)	Possible Source of Contamination
Turbidity (NTU)	**5**			**Soil runoff**

★ When turbidity is reported as a Treatment Technique (TT) for systems that meet the criteria for avoiding filtration, include the <u>highest single measurement</u> found in any month. You must also explain the reasons for measuring turbidity, which has been included in the chart below.

	TT	Highest Detected Daily Value	Violation (Y/N)	Possible Source of Contamination
Turbidity (NTU)	**5**			**Soil runoff**
Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of water quality.				

★ When turbidity is reported as a Treatment Technique (TT) for systems that filter and use turbidity as an indicator of filtration performance, include the highest single measurement and the lowest monthly percentage of samples meeting the turbidity limits specified in 310 CMR 22.20 for the relevant filtration technology during the last calendar year. You must also explain the reasons for measuring turbidity, (included in the chart below).

Turbidity	TT	Lowest Monthly % of Samples	Highest Detected Daily Value	Violation (Y/N)	Possible Source of Contamination
Daily Compliance (NTU)	**5**	**-----**			**Soil runoff**
Monthly Compliance*	**At least 95%**		**-----**		
Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of water quality.					
*Monthly turbidity compliance is related to a specific treatment technique (TT). Our system filters the water so at least 95% of our samples each month must be below the turbidity limits specified in the regulations.					

8). Radionuclides

★ **Gross Alpha.** For gross alpha detections, the reported results should reflect the subtraction of any uranium (pCi/l) values detected. Do not include any ± figures in the calculations. (ex. 32 pCi/l gross alpha – 26 pCi/l uranium = report 6 pCi/l of gross alpha).

★ **Radium 226 & 228**. For radium 226 and radium 228 detections, add the two results together and report the total COMBINED (pCi/l) value. Do not include any ± figures in the calculations. (ex. 1.2 pCi/l radium 226 + 0.3 pCi/l radium 228 = report 1.5 pCi/l radium 226 & 228 combined).

★ **Uranium.** Report uranium detections in ppb units of measure, as the MCL for uranium is in ppb units, NOT pCi/l. If uranium values are not listed on the laboratory report in ppb units of measure, convert to the ppb value by either multiplying the uranium ppm value (if available) by 1000 (ex. 0.038 ppm x 1000 = 38 ppb uranium); or convert pCi/l to ppb by multiplying pCi/l by 1.49 (ex. 26 pCi/l uranium x 1.49 ˜ 38 ppb uranium).

★ **Beta Particles**. The MCL for beta particles is 4 mrem/year. EPA recognizes that labs often report these results in pCi/l, and that there is no simple conversion between the two units. Therefore, it is acceptable for systems to report the detected level for beta particles in pCi/l. So that consumers may have a standard against which to compare the detected level, systems should place 50 in the MCL column and include a footnote explaining that EPA considers 50 pCi/l to be a level of concern for beta particles. Systems that detect beta particles at or above 50 pCi/l must determine the actual radioactive constituents present in the water to calculate the dose exposure level in mrem/yr, and must report both the detected level and the MCL as mrem/yr.

Radioactive Contaminants	Date(s) Collected	Highest Detected	Range Detected	Highest Average	MCL	MCLG	Violation (Y/N)	Possible Source(s) of Contamination
Gross Alpha (pCi/l) (minus uranium)	**5/15/99**	**6**	**---**	**---**	**15**	**0**	**N**	Erosion of natural deposits
Gross Beta/photon emitters (pCi/L) ?	**5/15/99**	**10**	**---**	**---**	**50**	**0**	**N**	Decay of natural and man-made deposits
Radium 226 & 228 combined (pCi/L)	**5/15/99**	**1.5**	**---**	**---**	**5**	**0**	**N**	Erosion of natural deposits
Uranium (ppb)	**5/15/99**	**38**	**---**	**---**	**30**	**0**	**Y**	Erosion of natural deposits

?The MCL for beta particles is 4 mrem/year. EPA considers 50 pCi/L to be the level of concern for beta particles.

9). Coliform

★ For systems that collect fewer than 40 samples per month, the system must report the **highest number of coliform positive samples** collected in one month.

★ If either fecal coliform or E.coli positive samples are detected, you must report the highest **total number positive** in a month.

	Highest # Positive in a month	MCL	MCLG	Violation (Y/N)	Possible source(s) of contamination:
Total Coliform	2	1	0	**YES**	Naturally present in the environment
Fecal Coliform or E.coli	1	*	0	**NO**	Human and animal fecal waste

* Compliance with the Fecal Coliform/E.coli MCL is determined upon additional repeat testing .

(In this example, since a violation occurred, the appropriate health effects language, found in Appendix C, must also be included in the CCR).

★ For systems that collect 40 or more samples per month, the MCL for total coliform is >5 percent of samples taken in one month that are total coliform positive.

★ For systems that collect 40 or more samples per month, the system must report the **highest percentage of total coliform positive samples** taken in one month.

★ If either fecal coliform or E.coli positive samples are detected, you must report the highest **total number positive** in a month. (Note: It is possible for a system to be in compliance with the 5% MCL, but violate the acute MCL for fecal coliform or E.coli during any given month.)

	Highest % Positive in a month	Total # positive	MCL	MCLG	Violation (Y/N)	Possible source(s) of contamination:
Total Coliform	3%	----	>5%	0	NO	Naturally present in the environment
Fecal Coliform or E.coli	----	1	*	0	NO	Human and animal fecal waste

* Compliance with the Fecal Coliform/E.coli MCL is determined upon additional repeat testing.

10). Monitoring Waivers
{tc \l2 "Monitoring Waivers}

★ Systems that have monitoring waivers, or for another reason monitor less often than once per year, must include information on contaminants detected in the most recent testing period. The report must also contain a brief explanation that the data for those contaminants is from the most recent testing done in accordance with the regulations.

★ If sampling was not performed for a given parameter in the calendar year covered by the report, then data going back a maximum of five years must be used.

★ As shown in the CCR example, for ease of presentation a column for the date of the last sample can be included in the table with the corresponding explanation outside of the table.

Contaminant	Date of Sample	MCL	MCLG	Highest Level Found	Range of Detections	Violation	Typical Source of Contaminant
Cyanide (ppb)	Feb '97	200	200	10		NO	Discharge from steel/metal industry;

							discharge from fertilizer and plastic factories
Selenium (ppb)	Feb '97	50	50	1		NO	Discharge from petroleum and metal refineries

Most of the data presented in this table is from testing done between January 1 - December 31, 1998. We monitor for some contaminants less than once per year, because the concentrations for those contaminants are not expected to vary significantly from year to year. As a result, some of our data though representative is more than a year old. For those contaminants, the date of the last sample is shown in the table.

11). MCLs

- ★ The table(s) must contain the MCL for detected contaminants expressed as a number equal to or greater than 1.
- ★ For any contaminant detected in violation of an MCL, a TT, a MRDL or exceeding an action level, the table(s) must contain a clear indication of the violation or exceedance.
- ★ Generally, the state and federal MCLs are the same for most contaminants. In cases where a state MCL may be more stringent than the federal standard, EPA recommends that the system indicate this in the report.
- ★ Include the MCL in the table and highlight the MCL through a different font or asterisk. Explain in a footnote that the state MCL is stricter than the federal standard. Placing both a federal and state MCL column in the table.
- ★ A system may also wish to highlight the case where there is no federal standard and the state has developed its own standard, using similar techniques.

APPENDIX F – VIOLATIONS OF DRINKING WATER REGULATIONS

The CCR must include a clear and readily understandable explanation of any drinking water violation during the reporting period, as well as any potential adverse health effects and the steps the system has taken to correct the violation.

Potential Health Effects Language

Of the seven violations identified below, there are mandatory health effects language for only three violations:

1). Filtration and disinfection;

Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses and parasites which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.

2). Lead and copper control requirements;

Lead: *Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning disabilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.*

Copper: *Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.*

3). Treatment techniques for acrylamide and epichlorohydrin;

Acrylamide: *Some people who drink water containing high levels of acrylamide over a long period of time could have problems with their nervous system or blood, and may have an increased risk of getting cancer.*

Epichlorohydrin: *Some people who drink water containing high levels of epichlorohydrin over a long period of time could experience stomach problems, and may have an increased risk of getting cancer.*

For the remaining violations, a system may use language listed in Appendix C or D, or design language that is tailored to that specific violation.

Monitoring and Reporting (M&R) Violations

Some contaminants are monitored for daily, others need to be checked far less frequently (every nine years is the longest monitoring cycle). For instance, at a minimum, drinking water systems will monitor continuously for turbidity, monthly for bacteria, and once a year for nitrate. A M&R violation means that

the system did not perform the required testing, take adequate samples, or report a violation as required. Most of the violations experienced by systems are for failure to monitor the drinking water during the time periods prescribed and/or report the results.

As shown in the CCR example, a column for violations can be placed in the detected contaminants table and further explanation of the violation presented outside of the table. In that explanation the system can indicate that while monitoring and reporting violations do not necessarily indicate a health risk. But if a system fails to monitor it may not be aware of the potential health risk posed by a contaminant which may be present but undetected.

If a system has multiple monitoring violations, it may be simpler and shorter to list them in a table followed by a short explanation. The table could include columns for monitoring periods, number of samples required during the period, number of samples actually taken and whether samples were taken during the following monitoring period. However, all monitoring violations are not the same and in some instances, the CWS may believe it is more appropriate to describe each violation in a short paragraph. For example, a coliform violation in which one of 100 samples was missed is less serious than missing one of two required samples.

Multiple monitoring violations listed in a table:

We failed to complete required sampling in a timely manner. Because we did not take the required number of samples, we did not know whether the contaminants were present in your drinking water, and we are unable to tell you whether your health was at risk during that time. The contaminants for which monitoring was not done are listed in the table below, with the period during which samples should have been taken, the number of samples each contaminant required, the number taken, and when required sampling was taken or will resume.

Contaminant	Monitoring Period	Number of Samples Required	Number of Samples Taken	Date Sampled or expected Samplin Date
Volatile Organic Compounds	1/96-12/98	1	0	2/99
Total Coliform Bacteria	10/1/98-10/31/98	100	93	11/98

Although monitoring may be done by group as opposed to each contaminant, each contaminant should be listed for not monitoring because each is a violation. For the example above, a footnote can be added to list all of the VOC's.

Regardless of whether the violation information is presented in tabular or paragraph form or a combination thereof, an explanation of the potential health effects and steps to correct the violation must also be included. If a system failed to take the sample on time, the report should say "health effects unknown." If the system took the samples accurately and on time, but mailed the results late, the system does not need to discuss health effect.

APPENDIX G – TREATMENT TECHNIQUES

Packed Column Aeration (VOC removal)

It is possible to remove many volatile organic compounds from water by aerating it and turning the contaminants into vapor. The [*PWS name*] pumps its water to the top of a large tower, which is filled with specially designed packing material. As the water trickles down the tower, air is pumped in from the bottom. This process breaks the water up into tiny particles and allows the air to strip away the volatile contaminants.

Conventional Filtration (coagulation, flocculation, sedimentation)

Small particles and organisms such as sediment, algae and bacteria can cause water to take on unpleasant odors or tastes, and sometimes make it unhealthy to drink. To remove this material, it is necessary to chemically treat the water and then pass it through a filter.

The process begins with [chemical name(s)] being added to the water at an established rate. This prompts the small particles to coagulate, or stick together and form particles of increasing size. Heavier particles to sink to bottom of large settling basins while the cleaner water flows onto a filter bed. Filters are comprised of several layers of coarse and fine sand and gravel, which trap the small particles that did not settle out previously. Over time, filters start to clog and need to be cleaned using a high-flow backwash process.

All chemicals used for coagulation are approved for water treatment by one of the following organizations: National Sanitation Foundation (now known as NSF International), or UL, both accredited by the American National Standards Institute (ANSI). Chemicals also have to meet performance standards established by the American Water Works Association.

Conventional Filtration (with coagulation, flocculation & *tube settling*)

Small particles and organisms such as sediment, algae and bacteria can cause water to take on unpleasant odors or tastes, and sometimes make it unhealthy to drink. To remove this material, it is necessary to chemically treat the water and then pass it through a filter.

The process begins with [chemical name(s)] being added to the water. This prompts the small particles to coagulate, or stick together and form particles of increasing size. After these particles form, the water enters a large chamber containing a series of tube settlers. These tubes are about 2 inches across, from two to three feet long and are placed at a 60-degree angle. Tube settlers provide a small, still environment where heavier particles can settle. The cleaner water then flows onto a filter bed. Filters are comprised of several layers of coarse and fine sand and gravel, which trap the small particles that did not settle out previously. Over time, filters start to clog and need to be cleaned using a high-flow backwash process.

All chemicals used for coagulation are approved for water treatment by one of the following organizations: National Sanitation Foundation (now known as NSF International), or UL, both accredited by the American National Standards Institute (ANSI). Chemicals also have to meet performance standards established by the American Water Works Association

Direct Filtration (without flocculation/sedimentation)

Small particles and organisms such as sediment, algae and bacteria can cause water to take on unpleasant odors or tastes, and sometimes make it unhealthy to drink. To remove this material, it is necessary to chemically treat the water and then pass it through a filter.

The process begins with [chemical name(s)] being added to the water at a calculated rate. This prompts the small particles to coagulate, or stick together, and form particles of increasing size. The chemically treated water then flows onto a filter bed. Filters are comprised of several layers of coarse and fine sand and gravel, which trap the small particles that did not settle out previously. Over time, filters start to clog and need to be cleaned using a high-flow backwash process.

All chemicals used for coagulation are approved for water treatment by one of the following organizations: National Sanitation Foundation (now known as NSF International), or UL, both accredited by the American National Standards Institute (ANSI). Chemicals also have to meet performance standards established by the American Water Works Association

Adsorption Clarification (Package Plant)

Small particles and organisms such as sediment, algae and bacteria can cause water to take on unpleasant odors or tastes, and sometimes make it unhealthy to drink. To remove this material, it is necessary to chemically treat the water and then pass it through two types of filtering units – an adsorption clarifier and a mixed media filter bed.

The process begins with [chemical name(s)] being added to the water at an established rate. This prompts the small particles to coagulate, or stick together and form particles of increasing size. The chemically treated water then flows into the adsorption clarifier, which is a chamber filled with buoyant adsorption media. As the turbulent water passes through this unit, the large particles adhere to the beads. This effectively removes up to 95 percent of all impurities. The cleaner water then flows onto a filter bed. Filters are comprised of several layers of coarse and fine sand and gravel, which trap the remaining particles. Over time, filters start to clog and need to be cleaned using a high-flow backwash process.

All chemicals used for coagulation are approved for water treatment by one of the following organizations: National Sanitation Foundation (now known as NSF International), or UL, both accredited by the American National Standards Institute (ANSI). Chemicals also have to meet performance standards established by the American Water Works Association.

Slow Sand Filtration

Small particles and organisms such as sediment, algae and bacteria can cause water to take on unpleasant odors or tastes, and sometimes make it unhealthy to drink. To remove this material, it is necessary to pass it through a sand filter bed that has three to four feet of sand over one foot of graded gravel.

Water is poured onto the top of the filter and passes slowly through the sand. This traps most of the particles. By the time the water reaches the bottom of the filter, better than 90 percent of all impurities have been removed. Over time, the sand filter starts to clog. When this happens, it is necessary to remove the top portion of the filter and replace it with clean sand.

Iron & Manganese Removal (oxidation and filtration)

Iron and manganese are often present in groundwater at levels that can discolor the water, or cause it to take on unpleasant odors or tastes. Even though the water may still be safe to drink, it is preferable that the iron and manganese be removed.

Removal generally requires a two-step process of oxidation and filtration. Oxidation is accomplished by adding [*chlorine, potassium permanganate*] to the water. This causes the iron and manganese to form tiny particles. Once this happens, the water passes through special filters consisting of material that is

specifically designed to capture iron and manganese particles. Over time, filters start to clog and need to be cleaned using a high-flow backwash process.

Sequestration (for iron & manganese)

Iron and manganese are often present in groundwater at levels that can discolor the water, or cause it to take on unpleasant odors or tastes. Even though the water may still be safe to drink, treatment is often desirable.

Treatment consists of adding [*polyphosphates, tripolyphosphate, metaphosphate, or silicate*] to water. This results in a chemical reaction, known as sequestration, which prevents the iron and manganese from forming nuisance particles.

All chemicals used for sequestration are approved for water treatment by one of the following organizations: National Sanitation Foundation (now known as NSF International or UL, both accredited by the American National Standards Institute (ANSI). Chemicals must also meet standards established by the American Water Works Association.

Primary Disinfection with Ozone (with filtration)

All reservoirs and some groundwater sources contain numerous microorganisms, some of which can cause people to become sick. To eliminate disease-carrying organisms, it is necessary to disinfect the water.

Disinfection does not sterilize the water; it removes harmful organisms. Sterilization is too costly and kills all microorganisms, even though most are not harmful. The [*PWS Name*] uses ozone, a unique form of oxygen that kills harmful organisms, as its primary disinfectant. The ozone generating equipment at the water treatment plant allows reactive gas to be bubbled into water in large contact basins. When combined with proper filtration, disinfection with ozone has been proven effective at ensuring that water is free of harmful organisms and safe to drink.

Primary Disinfection with Chlorine (with filtration)

All reservoirs and some ground water sources contain numerous microorganisms, some of which can cause people to become sick. To eliminate disease-carrying organisms, it is necessary to disinfect the water.

Disinfection does not sterilize the water; it removes harmful organisms. Sterilization is too costly and kills all microorganisms, even though most are not harmful. The [*PWS Name*] uses [*chlorine gas or sodium hypochlorite*] as its primary disinfectant. Chlorine destroys organisms by penetrating cell walls and reacting with enzymes. When combined with proper filtration, disinfection with chlorine has been proven effective at ensuring that water is free of harmful organisms and safe to drink.

Primary Disinfection with Chlorine (without filtration)

All reservoirs and some ground water sources contain numerous microorganisms some of which can cause people to be sick. To eliminate disease carrying organisms it is necessary to disinfect the water.

Disinfection does not sterilize the water, but it does destroy harmful organisms. Sterilization kills all microorganisms, even though most are not harmful, and is too costly to use on a routine basis. The [*PWS Name*] uses [*chlorine gas or sodium hypochlorite*] as its primary disinfectant. Chlorine destroys

organisms by penetrating cell walls and reacting with enzymes. Disinfection with chlorine has been proven effective at ensuring that water is free of harmful organisms and safe to drink.

Chloramination

Once water has been filtered or disinfected, steps must be taken to guard against harmful organisms that may be present in the pipes that distribute water to local homes and businesses. For this reason, ammonia is added to the water as it enters the distribution system.

Ammonia reacts with previously added chlorine to create a long-lasting disinfectant known as chloramine. This prevents bacterial growth in distribution pipes. It also minimizes the formation of trihalomethanes, which have been found to cause cancer in laboratory animals and are formed when chlorine reacts with organics that occur naturally in water.

The [*PWS name*] adds ammonia to its water. This, in conjunction with chlorine, has been effective at preventing bacterial regrowth throughout the entire distribution system.

Corrosion Control Through pH Adjustment

Many drinking water sources in New England are naturally corrosive (i.e. they have a pH of less than 7.0). So, the water they supply has a tendency to corrode and dissolve the metal piping it flows through. This not only damages pipes but can also add harmful metals, such as lead and copper, to the water. For this reason it is beneficial to add chemicals that make the water neutral or slightly alkaline.

This is done by adding any one, or a combination of several, approved chemicals. The [*PWS Name*] adds [*chemical name(s)*] to its water. This adjusts the water to a non-corrosive pH. Testing throughout the water system has shown that this treatment has been effective at reducing lead and copper concentrations.

All chemicals used for coagulation are approved for water treatment by one or of the following organizations: National Sanitation Foundation (now known as NSF International), or UL, both accredited by the American National Standards Institute (ANSI). Chemicals also have to meet performance standards established by the American Water Works Association.

Corrosion Control Through Inhibitor Addition

Many drinking water sources in New England are naturally corrosive (i.e. they have a pH of less than 7.0). So, the water they supply has a tendency to corrode and dissolve the metal piping it flows through. This not only damages pipes but can also add harmful metals, such as lead and copper, to the water. For this reason it is sometimes beneficial to add chemicals that can form a protective coating on the inside of pipes.

These chemicals are often referred to as corrosion inhibitors and normally contain small concentrations of either phosphates or silicates. The [*PWS Name*] adds [*chemical name*] to its water. Testing throughout the water system has shown that this treatment has been effective at reducing lead and copper concentrations.

All chemicals used for coagulation are approved for water treatment by one of the following organizations: National Sanitation Foundation (now known as NSF International), or UL, both accredited by the American National Standards Institute (ANSI). Chemicals also have to meet performance standards established by the American Water Works Association.

Corrosion Control Through pH Adjustment and Inhibitor Addition

Many drinking water sources in New England are naturally corrosive (i.e. they have a pH of less than 7.0). So the water they supply has a tendency to corrode and dissolve the metal piping it flows through. This not only damages pipes but can also add harmful metals, such as lead and copper, to the water. For this reason it is beneficial to add chemicals that provide a protective pipe coating and make the water neutral or slightly alkaline.

This is done by adding combinations of water treatment chemicals. The [*PWS Name*] adds [*chemical name(s)*] to its water. [C*hemical name*] is often referred to as an inhibitor and is what coats the inside of the pipe. It contains a small concentration of [*silicate or phosphate*]. [C*hemical name*] raises the water's pH to a non-corrosive level.] Testing throughout the water system has shown that this treatment has been effective at reducing lead and copper concentrations.

All chemicals used for coagulation are approved for water treatment by one of the following organizations: National Sanitation Foundation (now known as NSF International), or UL, both accredited by the American National Standards Institute (ANSI). Chemicals also have to meet performance standards established by the American Water Works Association.

APPENDIX H – SAMPLE SWAP LANGUAGE FOR YOUR CCR

For Community Public Water Systems

Once a SWAP report is completed for your system, your CCR must include:

1. where to obtain a copy of the SWAP Report, and
2. a brief summary of your system's susceptibility from the report.

The DEP recommends that public water suppliers provide additional information to alleviate consumer concerns. The following sample language is provided to help you summarize the Source Water Assessment Program (SWAP) Report for your system in your Consumer Confidence Report. Replace the items in brackets below with your system-specific information, *or you may choose your own format for the summary.*

REQUIRED CCR INFORMATION

What Is My System's Ranking?

A susceptibility ranking of [high, moderate or low] was assigned to this system using the information collected during the assessment by the DEP.

Where Can I See The SWAP Report?

The complete SWAP report is available [at the water department, Board of Health, or other location] and online at www.state.ma.us/dep/brp/dws/. For more information, call [water system contact and phone number].

OPTIONAL INFORMATION

What Is SWAP?

The Source Water Assessment and Protection (SWAP) program assesses the susceptibility of public water supplies.

What Are The Key Issues For Our Water Supply?

The SWAP Report notes the key issues of [key issues from the Discussion section of the SWAP Report] in the water supply protection area for source(s) [names]. The report commends the water system on [existing source protection measures].

What Can Be Done To Improve Protection?

The SWAP report recommends:

- [key recommendations]
- [key recommendations].

[The PWS] plans to address the protection recommendations by:

- [PWS plans]
- [PWS plans].

Residents can help protect sources by:

- [examples: practicing good septic system maintenance,
- supporting water supply protection initiatives at the next town meeting
- taking hazardous household chemicals to hazardous materials collection days,
- contacting the water department or Board of Health to volunteer for monitoring or education outreach to schools,
- limiting pesticide and fertilizer use, etc.]

APPENDIX I – USING ENVIRONMENTALLY FRIENDLY MATERIALS TO PREPARE YOUR ANNUAL DRINKING WATER REPORT

As this is an environmental report developed to inform the public, you may want to consider the use of environmentally preferable materials in printing up the report. This is a statement to the public that you, and they, can take actions to help protect drinking water. You may want to add a statement to the bottom of the report that highlights whichever environmental features you choose. This is just one way to show your community the numerous efforts you undertake to provide them with the highest quality water, and to emphasize that personal actions can make a difference. We recommend that you consider the following ways to make your report environmentally preferable:

Paper

Paper with a high percentage of recycled fibers is the first and easiest place to start. The most important thing to look for is the level of post-consumer content. In general, at virtually any print shop, you should be able to use 30 percent post-consumer paper for only a small fraction more than regular paper, and this is the minimum standard used by the Federal government and several states, including Massachusetts. One hundred percent post-consumer recycled paper is also readily available; however, this will cost more. Since paper is usually only about 20% of the total cost of a print job, we recommend you use paper with the highest post-consumer recycled content your budget allows.

As the bleaches used to make paper white can cause water pollution, and are known to be some of the more toxic drinking water contaminants, we recommend the use of paper which is "process-chlorine free," or PCF, which is available at many print shops for a small charge. You may also want to consider using "tree-free" paper, such as paper from kenaf, since this material needs significantly fewer chemicals to process and is a much more sustainable natural resource than the cutting down of trees.

Ink

Soy based inks are preferable to petroleum based inks, and are generally available in the basic colors at similar prices. Ask your printer for soy ink availability and cost.

Education

Letting the public know that you are using environmentally preferable products is important. Make sure your printer places a recycled logo and the words "printed on recycled paper" if you use recycled content paper. In addition, if you are using PCF paper or soy inks, you can put that on your document as well. There is also no harm in identifying the actual recycled content (e.g. 30% post-consumer content) if you so desire.

Mailing

If possible, consolidate your report into a billing or a newsletter mailing. Not only will this save paper and energy, but also it will be less costly.

APPENDIX J – LANGUAGE REQUIREMENT PER CITY/TOWN

City	Languages for complete CCR translation						
Chelsea	Spanish		**Holyoke**	Spanish		**New Bedford**	Portuguese
Fall River	Portuguese		**Lawrence**	Spanish			

City	Languages for info statement on importance of CCR						
Acushnet	Portuguese						
Amherst	Spanish	Chinese					
Arlington	Greek	Italian					
Attleboro	Portuguese						
Blackstone	French						
Boston	German	Greek	Indic	Italian	French	Portuguese	Spanish
	Russian	Arabic	Chinese	Japanese	Mon-Khmer	Vietnamese	Polish
Brockton	French	Portuguese	Spanish				
Brookline	Spanish	Russian	Chinese				
Cambridge	Italian	French	Portuguese	Spanish	Chinese	Korean	
Chicopee	French	Spanish	Polish				
Dartmouth	Portuguese						
Dracut	French						
Everett	Italian						
Fairhaven	Portuguese						
Fall River	French						
Fitchburg	French	Spanish					
Framingham	Portuguese	Spanish					
Gardner	French						
Gloucester	Italian						
Haverhill	Greek	Spanish					
Holyoke	French						
Hudson	Portuguese						
Lawrence	Italian	French					
Leominster	French	Spanish					
Lowell	Greek	French	Portuguese	Spanish	Mon-Khmer		
Ludlow	Portuguese						
Lynn	Greek	French	Spanish	Mon-Khmer			
Malden	Italian	Spanish	Chinese				
Medford	Italian						
Methuen	Italian	French	Spanish				
Milford	Portuguese						
New Bedford	French	Spanish					
Newton	Italian	Spanish	Chinese				
Peabody	Greek	Portuguese	Spanish				
Quincy	Italian	Spanish	Chinese				
Randolph	Chinese						
Revere	Italian	Spanish					
Salem	French	Spanish					
Somerset	Portuguese						
Somerville	Italian	French	Portuguese	Spanish			
Southbridge	French	Spanish					
Springfield	Italian	French	Portuguese	Spanish	Polish		
Stoneham	Italian						
Stoughton	Portuguese						
Swansea	Portuguese						
Taunton	Portuguese	Spanish					
Waltham	Italian	French	Spanish				
Watertown	Italian						
Westfield	Spanish						
Westport	Portuguese						
Worcester	Greek	Italian	French	Spanish	Polish	Vietnamese	

2000 Water Quality Report

Swift Falls, Massachusetts
PWS ID# 5402000

Last year, we conducted more than 500 tests for over 80 drinking water contaminants. We only detected 7 contaminants, and found only atrazine at a level higher than the state allows. As we told you in a letter at the time, our water was temporarily unsafe. For more information, see the paragraph on the last page of this report marked "About our atrazine violation."

This brochure is a snapshot of the quality of the water that we provided last year. Included are details about where your water comes from, what it contains, and how it compares to Environmental Protection Agency (EPA) and state standards. We are committed to providing you with information because informed customers are our best allies. For more information about your water, call Joe Sampson, Water Superintendent, at 867-5309.

Your water comes from three municipal wells sunk about 500 feet into an underground source of water called the Low Plain Aquifer. These wells are located west of town on Main Street, behind the municipal garage. The town owns the land around these wells and restricts **any** activity that could contaminate them.

After the water comes out of the wells, we treat it to remove several contaminants and we also add disinfectant to protect you against microbial contaminants.

Our Water Board meets on the first Tuesday of each month at 7:30 pm in the Town Hall. Please feel free to participate in these meetings.

Information on Protecting Your Water: Massachusetts DEP is planning to conduct a source water assessment for our system. For more information please contact Jane Smith at 617-555-1234.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

In order to ensure that tap water is safe to drink, the Massachusetts Department of Environmental Protection (DEP) and EPA prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The US Food and Drug Administration and the MA Department of Public Health regulations establish limits for contaminants in bottled water that must provide the same protection for public health.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling EPA's Safe Drinking Water Hotline (800-426-4791).

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water before we treat it include:

Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.

Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining and farming.

Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.

Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.

Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.

The following table lists all the drinking water contaminants that we detected during the 2000 calendar year or during the most recent sampling period within the past five years. These were the only contaminants detected in all the DEP-required monitoring. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk. Unless otherwise noted, the data presented in this table is from testing done January 1-December 31, 2000. The state requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. Some of the data, though representative of the water quality, is more than one year old.

Our system has had our monitoring requirements for volatile organic compounds (VOCs) reduced by the Massachusetts Department of Environmental Protection because the source is not at risk of contamination. The last VOC sample was collected on 3/16/94 and was found to be free of all the VOC contaminants.

Terms & abbreviations used in the table:

- **Maximum Contaminant Level Goal** (MCLG): the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
- **Maximum Contaminant Level** (MCL): the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
- **Action Level** (AL): the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
- **n/a**: not applicable
- **nd**: not detectable at testing limit
- **ppb**: parts per billion or micrograms per liter
- **ppm**: parts per million or milligrams per liter
- **pCi/l**: picocuries per liter (a measure of radiation)

Inorganic Contaminants	MC	MCL	Smithville water	Range of detection	Sample Date	Violation	Typical Source of Contaminant
Fluoride (ppm) -	2 [1]	4	0.98				water additive which promotes strong teeth
Nitrate as nitrogen (ppm)	10	10	6	nd-6			runoff from fertilizer use
Organic Chemical Contaminants							
Atrazine (ppb)	3	3	3.275	0.1-10	See below	**YES**	runoff from herbicide used on row crops
Total Trihalomethanes (TTHMs) (ppb)	100	n/a	73	40-135			by-product of drinking water chlorination
Radionuclides							
Beta/photon emitters (pCi/L)	50 [2]	0	10		5/7/99 [3]		erosion of natural deposits
Unregulated Contaminants							
Chloromethane (ppb)	not regulated			0.07	May '95	DEP regulations require us to monitor this contaminant while EPA considers setting a limit on it.	

Lead	AL	MCL	Smithville water 90th percentile level [4]	# of sites found above the AL	Typical Source of Contaminant
Lead (ppb)	15	0	2	1 site above AL out of 20 sites	corrosion of household plumbing systems

[1] EPA's MCL for fluoride is 4 ppm. However, our state has set a lower MCL to better protect human health.
[2] The MCL for beta particles is 4 mrem/year. EPA considers 50 pCi/l to be the level of concern for beta particles.
[3] The DEP only requires our system to sample for radionuclides every 3 years.
[4] EPA requires that no more than 10% of the sampled homes have lead levels over 15 ppb (the action level). The 90th percentile value represents the highest concentration found in 90% of the homes sampled.

About nitrate: Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant, you should ask for advice from your health care provider.

Is our water system meeting other rules that govern our operations? The state and EPA require us to test our water on a regular basis to ensure its safety. In February and May of this year, we received monitoring violations for nitrite and volatile organic compounds (VOCs). We took the samples at the required time but failed to submit the results of this monitoring to the state in a timely manner. At no time was a health threat present in the water. We are reviewing our procedures to ensure that this paperwork will be submitted in a timely manner in the future.

About our atrazine violation: During March, April and May, a big surge in the use of atrazine-based herbicides by area farmers caused our water to exceed the MCL for atrazine. We sent a notice warning you of this problem when it occurred. We are working with the state and local farmers to ensure that this never happens again, and we are monitoring atrazine levels monthly. We regret exposing you to any potential risk. You should know that some people who drink water containing atrazine well in excess of the MCL over many years could experience problems with their cardiovascular system or reproductive difficulties. If you want more information about atrazine or the violation, please call us (867-5309), Sample County's health department (423-4444), or the state drinking water office (853-323-3333).

APPENDIX L CCR COMPLIANCE CHECKLIST

Use this form as a guide to preparing and distributing your CCR.
Refer to guidance document for details on each of the requirements listed below.

Task	Done
Contents of CCR Did CCR contain:	
1) required water system information ▪ PWSID number, system name and name of town ▪ name and telephone number of a contact person ▪ information for non-English speaking persons (if required) ▪ information on public participation opportunities ▪ information on sanitary survey deficiencies	
2) information on sources of water ▪ type, ID#, common name, and location of water sources ▪ source water assessment information, if available ▪ treatment information (if required)	
3) required definitions ▪ MCL, MCLG ▪ TT, AL, MDRL, MDRLG, ORSG, SMCL, Variances and Exemptions, (if applicable)	
4) reporting levels of detected contaminants ▪ include all detects from the most recent round of DEP-required sampling for all contaminants (up to 5 years old) ▪ include data statement: data presented in table(s) is from the most recent round of testing done in accordance with the regulations ▪ highest contaminant level used to determine compliance ▪ MCL and MCLG ▪ range of levels found ▪ description of likely sources ▪ date of sample, if the sample is greater than one year old ▪ if a violation occurred, it is clearly labeled and the required health effects language is included ▪ for lead and copper, 90th percentile level, action levels, and number of sites exceeding the action level ▪ for coliform, the highest number or percent of positive samples collected in any one month ▪ for fecal coliform or E.coli, the highest number of positive samples collected in any one month ▪ for unregulated contaminants, the result or range detected ▪ include information on monitoring waivers	
5) required language ▪ explanation of contaminants which may be reasonably expected to be found in drinking water (exact wording required) ▪ explanation of the vulnerability of some populations to contaminants in drinking water (exact wording required) ▪ information on sources of drinking water, contaminants that may be present ▪ informational statements on arsenic, nitrate, lead, and total trihalomethanes, if those contaminants are detected under conditions prescribed in the rule ▪ information on *Cryptosporidium*, radon, and other unregulated contaminants	

6) information on drinking water violations such as: ▪ exceedances of MCLs, TT, MRDLs, or AIs ▪ monitoring and reporting of compliance data ▪ record keeping of compliance data ▪ filtration and disinfection ▪ lead and copper requirements ▪ treatment techniques for acrylamide and epichlorohydrin ▪ special monitoring requirements for inorganic and organic contaminants and sodium ▪ violation of the terms of variance, exemption, or a State or Federal administrative or judicial order	
for these violations the report must contain: ▪ explanation of violations, length of violation, potential health effects, and steps the PWS has taken to correct the violation	
7) required information if PWS is operating under a variance or exemption	
8) other DEP specific information ▪ information on drinking water ACOs or UAOs (if required) ▪ information on sodium, MTBE, and fluoride	
Report Delivery and Record Keeping Did PWS complete ALL of the following distribution requirements by July 1 ▪ deliver two copies of the CCR, certification form, and attachments to the DEP regional office ▪ deliver one copy of the CCR, certification form, and attachments to the DEP Boston office ▪ deliver the CCR and certification form to the local board of health and Massachusetts Department of Public Health ▪ deliver the CCR to customers or meet all the terms of the mailing waiver (see below) ▪ in addition to required delivery methods- use at least 3 "good faith" efforts to reach non-billed consumers ▪ make CCR available to the public upon request ▪ post CCR on the Internet if serving 100,000 or more persons	
Did the certification indicate and ensure that: ▪ CCR was distributed to customers ▪ CCR contained information correct and consistent with compliance monitoring data previously submitted to DEP	
Systems with Monitoring Waivers serving fewer that 10,000 persons: ▪ publish CCR in at least one local newspaper ▪ notify customers that CCR will not be mailed ▪ make CCR available to the public upon request serving fewer that 500 persons: ▪ provide notice to customers at least once during the year that the CCR will not be mailed, and is available to the public upon request	